

INDEX OF SUBJECTS.

ABSTRACTS. 1899. Parts I & II.

(Marked A. i and A. ii respectively); and also to Transactions, 1899; (marked T.); and to Proceedings of the Session 1898—1899, Nos. 198 to 212, Nov., 1898—June, 1899 (marked P.).

INDEXERS.

J. BRUCE, B.Sc.
M. O. FORSTER, Ph.D., B.Sc.
E. GOULDING, B.Sc.
J. S. HALDANE, M.A., M.D., F.R.S.

R. L. JENKS.
P. A. E. RICHARDS.
L. J. SPENCER, M.A.
J. F. THORPE, Ph.D.

A.

Absinthin (BOURCET), A., i, 538.
Absorption, intestinal, causes of (REID), A., ii, 775.
intestinal, of proteids (MENDEL), A., ii, 230; (LEVENE and LEVIN) A., ii, 309.
of salts by the small intestine (HÖBER), A., ii, 372.
of iodised fats (RÖSEL), A., ii, 775.
of iodides by the skin (GALLARD), A., ii, 503.
of iron in the guinea-pig (SWIRSKI), A., ii, 373.
of liquids by muscle (LOEB), A., ii, 503.
from the peritoneal cavity (LEVENE and LEVIN), A., ii, 309; (MENDEL), A., ii, 440.
Acenaphthenepheno-p-diazine (*aa-naphthaquinazoline*) and its dibromo-derivative (AMPOLA and RECCHI), A., i, 918, 919.
Acenaphthenequinone, monurein, diurein, and dinitrodiurein (AMPOLA and RECCHI), A., i, 919.
Acetal, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
bromo-, action of, on ethylic sodio-malonate and sodiomethylmalonate (PERKIN and SPRANKLING), T., 13; P., 1898, 112.
Acetalazinetetrasulphonic acid (SCHROETER), A., i, 119.

Acetaldehyde, occurrence of, in petroleum products (ROBINSON), A., i, 665.
from the action of mercuric oxide on acetylene (ERDMAN and KÖTHNER), A., i, 21.
melting point of (LADENBURG and KRÜGEL), A., ii, 545.
influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.
action of ethylenediamine on (KOLDA), A., i, 328.
action of, on ethylenic glycol in presence of phosphoric acid (VERLEY), A., i, 665.
action of mercuric sulphate on (DENIGÈS), A., i, 414.
action of fuming sulphuric acid on (BERTHELOT), A., i, 397.
condensation of, with propionic acid (KIETREIBER), A., i, 331.
semicarbazone of (THIELE and BAILEY), A., i, 169.
estimation of (ROCQUES), A., ii, 189.
preparation of a standard solution of (ROCQUES), A., ii, 531.
Acetaldehyde, dibromo- (SWARTS), A., i, 735.
thio- (KLINGER), A., i, 859.
Paraldehyde, action of fuming sulphuric acid on (BERTHELOT), A., i, 397.
Acetaldehyde-ammonia, heat developed by action of sulphuric acid on (DE FORCRAND), A., i, 109.

- Acetaldehyde-ammonia**, equilibrium in dissociation of (BANCROFT), A., ii, 411.
 action of sodium hypochlorite on (DELÉPINE), A., i, 326.
- Acetaldehydedisulphonic acid** (SCHROETER), A., i, 119.
 bromo- (KÖHLER), A., i, 489.
- Acetaldehydophenylhydrazone**, *p*-nitro- (HYDE), A., i, 689.
α-nitro- (*phenylnitro-azoethane*) (BAMBERGER), A., i, 108.
- Acetaldehydophenylhydrazonedisulphonic acid** (SCHROETER), A., i, 119.
- Acetaldoxime**, freezing point of (CARVETH), A., ii, 81.
 stereoisomeric forms of, equilibrium of (BANCROFT), A., ii, 145.
- Acetaldoximedisulphonic acid** (SCHROETER), A., i, 119.
- Acetalmalonic acid** and its ethylic and silver salts (PERKIN and SPRANKLING), T., 13; P., 1898, 112.
- Acetalmethylmalonic acid** and its ethylic and silver salts (PERKIN and SPRANKLING), T., 18.
- Acetamide**, preparation of (ASCHAN), A., i, 14.
 use of, as solvent in molecular weight determinations (CASTORO), A., ii, 360.
 action of chromic acid on (OECHSNER DE CONINCK), A., i, 243.
 action of methylic semiorthoxalate on (ANSCHÜTZ and STIEPEL), A., i, 573.
 action of fuming sulphuric acid on (BAGNALL), T., 279.
 conversion of, into ethylamine by reduction (GUERBET), A., i, 795.
 oxidation of (OECHSNER DE CONINCK), A., i, 509.
 mercury compound of (KIESERITZKY), A., ii, 395.
 mercury compound of, estimation of (LEY and KISSEL), A., ii, 485.
- Acetamide**, *dichloro*-, from action of ammonia on ethylic tetrachloroacetonedicarboxylate (DOOTSON), T., 171; P., 1899, 9.
trichloro-, *tribromo*- and *chlorodibromo*- (SWARTS), A., i, 735.
- 1'-Acetamido-2-acetoxy-1:4-naphthaquinone** (KEHRMANN and HABERKANT), A., i, 62.
- 3-Acetamido-4-anilino-1:2- and -β-naphthaquinones** (KEHRMANN and ZIMMERLI), A., i, 80, 81.
- 3'-Acetamido-2-anilinophenylisonaphthaphenazonium chloride**, its anhydride and salts (KEHRMANN and AEBI), A., i, 527.
- 2''-Acetamido-3-anilinophenylisonaphthaphenazonium hydroxide and chloride** (KEHRMANN and RAVINSON), A., i, 526.
- Acetamidobenzaldehyde** (PINNOW and WISKOTT), A., i, 500.
- o*-Acetamidobenzonitrile** (FRIEDLÄNDER), A., i, 350.
- Acetamidocresol acetate**, chloro- (KEHRMANN and TICHVINSKY), A., i, 129.
- Acetamido-*m*-cresol acetate**, bromo- (KEHRMANN and RÜST), A., i, 130.
- Acetamidodibenzyl disulphide**, amino- (THIELE and DIMROTH), A., i, 427.
- 3'-Acetamido-2-dimethylaminophenylisonaphthaphenazonium salts** (KEHRMANN and AEBI), A., i, 527.
- Acet-*o*-amidodimethylaniline** (PINNOW), A., i, 684.
- Acetamidodimethylbenzhydrol** (DRAWERT), A., i, 643.
- Acetamidodimethyl-*p*-toluidine**, nitro- (PINNOW and MATCOVITCH), A., i, 50.
- p*-Acetamidodiphenylamide**, *p*-amino-, dibenzylidene derivative and thiocarbimide (JACOBSON and KUNZ), A., i, 275.
p-chloro- (JACOBSON and STRÜBE), A., i, 273.
- 4-Acetamidoethenyl-1:2-naphthylenediamine**, picrate, silver, and methyl derivatives (MELDOLA and PHILLIPS), T., 1013; P., 1899, 187.
- p*-Acetamidoformazylbenzene** (WEDEKIND), A., i, 690.
- p*-Acetamidohydrazobenzene**, transformation of (JACOBSON and KUNZ), A., i, 275.
- 3-Acetamido-2-hydroxy-1:4-naphthaquinone** (KEHRMANN and ZIMMERLI), A., i, 80.
- 2-Acetamidomesitylenonitrile** (BAMBERGER and WEILER), A., i, 124.
- 3-Acetamido-4-methylamino-1:2-naphthaquinone** (KEHRMANN and ZIMMERLI), A., i, 80.
- 2-Acetamidomethylnaphthaphenazonium** (KEHRMANN and JACOB), A., i, 237.
- Acetamidomethyltriazole** (THIELE and MANCHOT), A., i, 167.
- 5-Acetamidonaphthaphenazine**, and 6-chloro-derivative (KEHRMANN and ZIMMERLI), A., i, 80.
- 4'-Acetamidonaphthaphenazine**, 2-nitro- (KEHRMANN and JACOB), A., i, 237.
- 3''-Acetamidonaphthaphenazine** (KEHRMANN and MATES), A., i, 81.
- 4'-Acetamidonaphthaphenazonium salts**, 2-nitro- (KEHRMANN and JACOB), A., i, 237.

- 3-Acetamidonaphthaquinol** (KEHRMANN and ZIMMERLI), A., i, 79.
- 3-Acetamido- β -naphthaquinone**, and oxime (KEHRMANN and MATES), A., i, 81.
- 3-Acetamido-1:2-naphthaquinone**, and 4-amino- and 4-chloro-derivatives (KEHRMANN and ZIMMERLI), A., i, 79.
- 3-Acetamido- β -naphthaquinonemalonic acid**, anhydride of ethylic salt (LIEBERMANN), A., i, 373.
- 2-Acetamido-1:4:2'-naphthaquinone-sulphonic acid** and aniline salt (GAESS), A., i, 375.
- Acetamidonitro-*o*-aminodiphenylamine** (KEHRMANN, RADEMACHER, and FEDER), A., i, 236.
- Acetamidophenetidine** (COHN), A., i, 944.
- o*- and *m*-**Acetamidophenetol**, *p*-chloro- (REVERDIN and DÜRING), A., i, 266, 267.
- v*-**Acetamidophenetol**, *dichloro*- (REVERDIN and DÜRING), A., i, 267.
- 2'-*p*-Acetamidophenylbenzimidazole**, 2-amino- (KYM), A., i, 943.
- 2'-*o*-Acetamidophenylbenzimidazole** (VON NIEMENTOWSKI), A., i, 645.
- Acetamidophenyldinaphthazonium chloride** (KEHRMANN and SUTHERST), A., i, 527.
- Acetamidophenylic ethylic carbonate** (HINSBERG), A., i, 496.
- propylic ether (HINSBERG), A., i, 495.
- 2-Acetamidophenylnaphthaphenazonium**, 4-amino-, and its chloride (KEHRMANN, RADEMACHER, and FEDER), A., i, 236.
- v*-**Acetamidophenylnaphthaphenazonium chloride**, 2-nitro-4'-amino- (KEHRMANN, RADEMACHER, and FEDER), A., i, 236.
- 2-Acetamidophenylysonaphthaphenazonium salts** (KEHRMANN and LEVY), A., i, 238.
- 2'-Acetamidophenylysonaphthaphenazonium chloride** and 3-amino-derivative (KEHRMANN and RAVINSON), A., i, 525.
- Acetamidophenylrosinduline** and chloride (KEHRMANN and LOCHER), A., i, 82.
- Acetamidophenyltolimidazole** (VON NIEMENTOWSKI), A., i, 645.
- Acetamidoquinol** and its chloro-derivative (KEHRMANN and BAHATRIAN), A., i, 31.
- Acetamidoquinone**, formation of (KEHRMANN and GAUHE), A., i, 28.
- chloro- and bromo- (KEHRMANN and BAHATRIAN), A., i, 31.
- Acetamidoisorosindone** (KEHRMANN and LEVY), A., i, 238.
- Acetamido-*p*-tolyl- ψ -aziminobenzene** (WILLGERODT and DAUNER), A., i, 825.
- 1- and 2-Acetamido-3:1':2'-trimethylbenzimidazoles** and picrates (PINNOW and MATCOVITCH), A., i, 50.
- p*-Acetamidotriphenyltetrazolium iodide** (WEDEKIND), A., i, 690.
- Acetamidovanillic acid** (VOGL), A., i, 698.
- Acetamidoxylmethylnitrosamine** (PINNOW and OESTERREICH), A., i, 203.
- Acetanilide**, formation of (PAWLEWSKI), A., i, 594.
- action of fuming nitric acid on; *p*-bromo-, preparation of (KUNZ-KRAUSE), A., i, 591, 592.
- action of sulphonating agents on (ARMSTRONG), P., 1899, 178.
- action of sulphuric acid on (BAGNALL), T., 280; P., 1898, 182.
- action of zinc chloride and hydrogen peroxide on (BRÄUTIGAM), A., i, 754.
- oxidation of (OECHSNER DE CONINCK), A., i, 509.
- sodium compound of, action of phosphene on (DIXON), T., 384.
- Acetanilide bromo- and dibromo-**, action of sulphonating agents on (ARMSTRONG), P., 1899, 178.
- chloro-, *p*-chloro-, and 1:4-*dichloro*- (CASTORO), A., i, 430.
- 2:4-*dichloro*- and 2:4:6-*trichloro*-, formation of (CHATTAWAY and ORTON), T., 1052; P., 1899, 153.
- o*-*dichloro*- (PAWLEWSKI), A., i, 594.
- Acet-*o*-anisidide**, *p*-nitro-, *p*-amino-, and *p*-iodo- (MELDOLA), P., 1898, 226.
- Acetethyl-*m*-amidophenol-saccharein** (MONNET and KETSCHET), A., i, 213.
- Acethydroxamic acid**, isomeric benzoates of (CAMERON), A., i, 206.
- Acetic acid**, presence of, in plants (LIEBEN), A., ii, 45.
- electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
- heat conductivity of (AUBEL), A., ii, 354.
- heat developed in decomposition of potassium cyanide by (BERTHELOT), A., ii, 737.
- effect of pressure on melting point curve of (TAMMANN), A., ii, 636.
- freezing point of mixtures of water and (DE COPPET), A., ii, 546.
- depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.

- Acetic acid**, vapour, dissociation of (LEDUC), A., ii, 729.
 influence of dissolved acetates on dissociation of (BAMBERGER), A., ii, 548.
 diffusion velocity and association of (HÜFNER), A., ii, 9.
 surface tension of aqueous solutions of (FORCH), A., ii, 641.
 distribution ratio of, between benzene and water (WADDELL), A., ii, 144.
 action of, on liquid ammonia (FRANKLIN and KRAUS), A., ii, 202.
 action of sulphuric acid on (BAGNALL), T., 279.
 deposition of anhydrous ferrous salts from (THOMAS), A., ii, 426.
 estimation of (ULSCH), A., ii, 802.
 estimation of, in commercial acetates (HABERLAND), A., ii, 531.
 estimation of formic acid in presence of (LEYS), A., ii, 132.
 separation of, from other fatty acids (HOLZMANN), A., ii, 68.
 separation of propionic, butyric, and formic acids from (HABERLAND), A., ii, 531.
 separation of, from isovaleric acid (CHAPMAN), A., ii, 704.
- Acetic acid**, metallic salts, dissociation of, in solution (CALAME), A., ii, 145.
 ammonium salt, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 copper salt, action of ammonia on (VITTENET), A., i, 658.
 chromium salt, modifications of (RECHOURA), A., ii, 661, 662, 663.
 ferric salt, decomposition of (HERZ), A., i, 416.
 mercury salts, dissociation and conductivity of (LEY and KISSEL), A., A., ii, 486.
 mercuric and mercurous salts, decomposition of, by action of light (BERTHELOT), A., ii, 2.
 potassium salt, boiling point of alcoholic solutions of (KRAFFT), A., ii, 471.
 praseodymium salt of (SCHEELÉ), A., ii, 100.
 silver salt, solubility of (ARRHENIUS), A., ii, 360.
 reaction between sodium formate and (NOYES and COTTLE), A., ii, 205.
 sodium salt, action of mercuric oxide and mercuric iodide on, in presence of alkali (HOFMANN), A., i, 486.
 solubility of benzoic acid in solutions of (NOYES and CHAPIN), A., ii, 274.
- Acetic acid**, *p*-acetophenyl salt of (VERLEY), A., i, 426.
 β -aminoisopropyl salt of (UEDINCK), A., i, 498.
 amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
 benzylic salt, preparation of, and *p*-bromo-; diphenylmethyl and benzyldenic salts (BODROUX), A., i, 678.
 bornylic salt in oils of larch, fir, hemlock, spruce, and rosemary (SCHIMMEL and Co.), A., i, 63.
 $\alpha\beta$ -dibromopropyl and $\alpha\gamma$ -dichloroisopropyl salts, action of potassium thiocyanate on (ENGLE), A., i, 3.
d-bromoxenolcarbinylic salt (AUWERS), A., i, 343.
tert-p-butylbenzylic salt and 2:5-dinitro-derivative (VERLEY), A., i, 424.
trichloroethyl, *trichloroisopropyl*, *phenyltrichloroethyl*, and *phenyltribromomethyl* salts, action of zinc shavings on (JOCITSCH and FAWORSKY), A., i, 786.
 cyanobutyl salt (HENRY), A., i, 567.
 dibutylresorcinyl and diamylresorcinyl salts (GUREWITSCH), A., i, 880.
 ethylic salt, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
 melting point of (LADENBERG and KRÜGEL), A., ii, 545.
 viscosity of solutions of, in thymol (SCHALL), A., ii, 640.
 reactions of metallic salts dissolved in (NAUMANN), A., ii, 423.
 velocity of formation and hydrolysis of (SUDBOROUGH and LLOYD), T., 474; P., 1899, 3.
 hydrolysis of (MULLER), A., ii, 359.
 velocity of, hydrolysis in aqueous alcoholic solution (KISTIAKOWSKY), A., ii, 13.
 methyl salt, hydrolysis of, by diphenyliodonium hydroxide (SULIVAN), A., ii, 398.
o-phenylbenzylic salt (FANTO), A., i, 367.
 phenyl, and *o*-nitro-, guaiacylic and eugenyl salts (FREYSS), A., i, 874.
p-toluylcarbinylic salt (COLLET), A., i, 55.
 toluquinone-*m*-oxime salt (BRIDGE and MORGAN), A., i, 130.

Acetic acid, amino-. See Glycocine.

bromo-, from action of hydrogen peroxide and of nitric acid on *di*-bromodimethyl diketone (KELLER and MAAS), A., i, 11.

l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.

ethylic salt, action of sodium alkyl-oxides on (BISCHOFF), A., i, 669.

ethylic salt, condensation of, with ethylic cyanodimethylglutarate (PERKIN and THORPE), T., 900; P., 1899, 184.

condensation of, with ethylic α -cyano- β -phenylglutarate (THORPE and UDALL), T., 905; P., 1899, 184.

bromothio-, barium salt, from action of barium manganate on bromhydroxyethanesulphonic acid (KÖHLER), A., i, 489.

chloro-, influence of pressure on, melting point of (HULETT), A., ii, 469.

solutions, solid and liquid, of, in naphthalene (CADDY), A., ii, 405.

mercury salts, dissociation and conductivity of (LEY and KISSEL), A., ii, 486.

potassium salt, action of mercuric oxide on (HOFMANN), A., i, 486.

ethylic salts, velocity of hydrolysis of, in aqueous alcoholic solution (KISTIAKOWSKY), A., ii, 13.

mono- and *di*-chloro-, sodium salts, electrolysis of (TROEGER and EWERS), A., i, 12.

mono-, *di*-, and *tri*-chloro-, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.

influence of, on dissociation of chlorine in water (JAKOWKIN), A., ii, 736.

and *mono*-, *di*- and *tri*-bromo- and iodo-derivatives, ethylic salts, velocity of formation and hydrolysis of (STUBBOROUGH and LLOYD), T., 476; P., 1899, 3.

dichloro-, from action of potash on ethylic tetrachloroacetonecarboxylate (DOOTSON), T., 171; P., 1899, 9.

di- and *tri*-chloro-, and potassium salts, molecular refraction of solutions of (HALLWACHS), A., ii, 462.

cyano-, action of cuprous chloride on (RABAUT), A., i, 557.

amylic salt, action of ethylic and methylic orthoformate on, in presence of acetic anhydride (BOLLEMONT), A., i, 736.

Acetic acid, cyano-, ethylic salt, electrical dispersion of (LÖWE), A., ii, 201.

action of amylic formate on sodium derivative of (BOLLEMONT), A., i, 736.

action of ethylenic and trimethylenic bromides on sodium derivative of (CARPENTER and PERKIN), T., 921; P., 1899, 133.

condensation of sodium derivative of, with ethylic α -bromo-*iso*-amylacetate (LAWRENCE), P., 1899, 163.

action of ethylic bromo*iso*butyrate on sodium derivative of (BONE), P., 1899, 5.

condensation of, with ethylic α -bromopropionate (BONE and SPRANKLING), T., 852.

action of, on ethylic cinnamate (THORPE and UDALL), T., 906; P., 1899, 184.

condensation of sodium derivative with ethylic dimethylacrylate (PERKIN and THORPE), T., 52.

condensation of sodium derivative with ethylic β -isopropylacrylate (HOWLES and THORPE), P., 1899, 104.

condensation of, with quinones and with indones (LIEBERMANN), A., i, 522.

and methylic salt, action of *iso*-valeric chloride on (KLOBE), A., i, 113.

fluorodibromo-, formation of, salts, amide, and bromide (SWARTS), A., i, 254, 734.

Acetic acid bacteria (HOYER), A., ii, 784.

Acetic anhydride, action of, on the higher fatty acids (ALBITZKY), A., i, 862.

Acetic chloride, tribromo-, *tri*chloro-, formation of (SWARTS), A., i, 254, 734.

Acetic fluoride, tribromo-, fluorochlorobromo-, and fluorodibromo- (SWARTS), A., i, 254.

Acetic series, chloro-derivatives, thermochemistry of (RIVALS), A., ii, 204.

Acetimidooacetylphenyltriazoline (BAMBERGER and VON GOLDBERGER), A., i, 547.

5-Acetimido-1:3-diphenylpyrazoline (SEIDEL), A., i, 138.

Acetimidodiphenyltriazoline (CUNEO), A., i, 549.

Acetimidooethylic ether, from action of alcohol on cyanoform (HANTZSCH and OSSWALD), A., i, 405.

Acetoacetic acid,

- ethylic salt, stability of, towards alkalis, relative to that of ethylic dimethylacetoacetate (FISCHER), A., i, 262.
- conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
- compound obtained by action of, on carvone, desmotropic forms of (RABE), A., i, 289.
- trimethylenemercaptolate of (AUTENRIETH and WOLFF), A., i, 580.
- action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
- action of cyanogen on (TRAUBE), A., i, 192.
- action of ethylic thiocyanate on sodium derivative of (KÖHLER), A., i, 738.
- action of *p*-phenetidine on (FOLLINO), A., i, 132.
- condensation of, with anisamidine (GABRIEL and COLMAN), A., i, 638.
- condensation of, with benzidine (HEIDRICH), A., i, 366.
- condensation of sodium derivative, with ethylic α -bromopropionate and α -bromoisobutyrate (BONE and SPRANKLING), T., 847.
- condensation of, with ethylic phenylpropionate (RUHEMANN), T., 251; P., 1899, 6.
- condensation of, with ethylic *p*-nitrophenylpropionate, and with ethylic acetylenedicarboxylate (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.
- copper compound and basic copper methoxide of (WISLICENUS), A., i, 192.
- copper derivative, action of aliphatic thiocyanates on (KÖHLER), A., i, 737.
- determination of the molecular weight of the sodium derivative of (VORLÄNDER and SCHILLING), A., i, 672.
- cyno-, ethylic salt, from decomposition of ethylic dicyanacetoacetate (TRAUBE), A., i, 192.
- copper derivative (KÖHLER), A., i, 737.
- dicyano- (α -acetyl- β -cyano- β -iminopropionic acid), ethylic salt, and action of ethylic acetoacetate and ethylic malonate on (TRAUBE), A., i, 192.
- Acetoacetic benzide and salts** (HEIDRICH), A., i, 367.
- Acetoacetoxybenzophenonephenylimine** (GRÄBE and KELLER), A., i, 703.

Acetoallylamide, and the action of bromine on it (CHIARI), A., i, 325.

***o*-Acetobenzylanisidide**, *p*-nitro- (PAAL and BENKER), A., i, 587.

Acetobenzylie cyanide (BECKH), A., i, 211.

Acetobenzyl-*m*- and -*p*-nitranilides, *p*-nitro- (PAAL and BENKER), A., i, 587.

Aceto-*m*-bromobenzhydrazide (CURTIUS and PORTNER), A., i, 136.

***p*-Acetobromophenylhydrazide** hydrocyanide (FREER), A., i, 357.

Acetocarbamide, chloro-, action of alkylsulphinates on, and action of potassium hydrosulphide and thiocyanate on (FRERICHS), A., i, 795, 796.

thiocyano- (FRERICHS), A., i, 796.

Acetocarbamilide, formation of (DIXON), T., 384.

Aceto-*p*-diacetoxydiphenylamide (SCHNEIDER), A., i, 499.

Acetodiphenylamidotriazine (THIELE and BIHAN), A., i, 47.

Acetodiphenylcarbamide (DIXON), T., 395.

formation of (DAINS), A., i, 593.

Acetoethylbornylamide (FORSTER), T., 946.

Acetoethylnaphthaphenosaffranine (SCHAPOSCHNIKOFF), A., i, 506.

Acetoethylisorosinduline (SCHAPOSCHNIKOFF), A., i, 506.

Acetohydrazide, action of heat on (PELLIZZARI), A., i, 858.

Acetol. See Acetylcarbinol.

Acetomethylanilide, action of methylic iodide on (WEDEKIND), A., i, 352.

p-nitro- (STOERMER and HOFFMANN), A., i, 43.

Acetomethyl-*o*-toluidide (GNEHM and BLUMER), A., i, 266.

Acetomethyl-*o*-toluidine-*p*-sulphonic acid (GNEHM and BLUMER), A., i, 266.

2-Acetomethyl-*m*-xylidide (FRIEDLÄNDER and BRAND), A., i, 351.

4-Acetomethyl-*m*-xylidide (PINNOW and OESTERREICH), A., i, 203.

Aceto- α -naphthylamide, action of sulphuric acid on (BAGNALL), T., 280; P., 1898, 182.

Aceto- β -naphthylsulphonehydrazide (CURTIUS and LORENZEN), A., i, 149.

Acetone, from oxidation of dimethylacrylic acid, and its *p*-bromophenylhydrazine compound (CROSSLLEY and LE SUEUR), T., 165; P., 1898, 219.

E.M.F. of, copper|zinc cell with hydrochloric or trichloroacetic acid in (SALVADORI), A., ii, 721.

- Acetone**, conductivity of electrolytes in (DUTOIT and FRIDERICH), A., ii, 350.
 boiling points of mixtures of, with alcohol or chloroform (THAYER), A., ii, 402.
 boiling point curves of mixtures of, with methylic alcohol (PETTIT), A., ii, 632.
 boiling points of mixtures of, with chloroform or carbon tetrachloride (HAYWOOD), A., ii, 632.
 melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 lowering of the freezing point of water by (WADDELL), A., ii, 403.
 composition of mixed vapours of water and (CARVETH), A., ii, 467.
 solubility of some metallic salts in (ROHLAND), A., ii, 144.
 reactions of metallic salts dissolved in (NAUMANN), A., ii, 423.
 aqueous, solutions of naphthalene in (CADDY), A., ii, 82.
 equilibrium between water, potassium chloride and; and between water, naphthalene and (SNELL), A., ii, 407, 408.
 oxidation of, by potassium permanganate (COCHENHAUSEN), A., i, 251.
 combination of, with mercuric sulphate (DENIGÈS), A., i, 22, 256; (OPPENHEIMER), A., i, 475.
 condensation of, with isobutaldehyde (FRANKE and KOHN), A., i, 11.
 behaviour of the phenylhydrazone of, towards benzoic chloride, benzoic anhydride, benzaldehyde, and phthalic anhydride (FREER), A., i, 357.
 origin of, in the living body (COTTON), A., ii, 780.
 oxidation of, in the organism (SCHWARZ), A., ii, 40.
 detection of (MALERBA), A., ii, 132.
 detection of, in formaldehyde (SMITH), A., ii, 188.
 detection of, in urine (STUDER), A., ii, 190.
 estimation of (DENIGÈS), A., ii, 256.
Acetone, bromo-, action of, on trimethylamine (BRENDLER and TAFEL), A., i, 104.
pentabromo- (KELLER and MAAS), A., i, 11; (BERGESIO and SABBATANI), A., i, 733.
 chloro-, action of primary, secondary, and tertiary bases on (SCHMIDT), A., i, 4.
 condensation of, with ethylic acetone-dicarboxylate in presence of ammonia (FEIST and MOLZ), A., i, 675.
Acetone, *ψ*-dichloro- (POSNER), A., i, 605.
pentiodo- (PERATONER and LEONARDI), A., i, 421.
 nitro- (HENRY), A., i, 251; (LUCAS), A., i, 433.
 and the action of sodium ethoxide, piperidinomethylic alcohol and phenylhydrazine on it (HENRY), A., i, 475.
isonitro- (HANTZSCH and VEIT), A., i, 403; (LUCAS), A., i, 433.
Acetoneaminodicyanodiamidine, hydrochloride of (THIELE and UHLFELDER), A., i, 119.
Acetonebenzil, condensation of, with benzaldehyde (JAPP and FINDLAY), T., 1026; P., 1899, 164.
Acetonechloroform (CAMERON and HOLLY), A., i, 323.
 reduction of, by zinc dust (JOCITSCH), A., i, 748.
 acetate, action of zinc shavings on (JOCITSCH and FAWORSKY), A., i, 786.
Acetonecyanhydrin. See *α*-Hydroxyisobutyronitrile.
Acetonedicarboxylic acid, action of bromine on (BERGESIO and SABBATANI), A., i, 733.
 detection of (DENIGÈS), A., ii, 454.
 ethylic salt, action of chlorine and of bromine on (DOOTSON), T., 169; P., 1899, 9.
 condensation of, by sodium ethoxide, hydrogen chloride, ethylic chlor- or brom-acetate, or magnesium (JERDAN), T., 808; P., 1899, 151.
 condensation of, with chloracetone, in presence of ammonia (FEIST and MOLZ), A., i, 675.
Acetonedicarboxylic acid, *tetrachloro*-, ethylic salt, and action of potash and of ammonia on it (DOOTSON), T., 169; P., 1899, 9.
Acetone-ethylmercaptole, nitroso- (POSNER), A., i, 605.
Acetone-oils (BUISINE and BUISINE), A., i, 475 (DUCHEMIN), A., i, 859.
Acetoneoxalic acid, ethylic salt, electrical dispersion of (LÖWE), A., ii, 201.
Acetonetricarboxylic acid, ethylic salt, and action of ethylic malonate on, in presence of sodium ethoxide (WILLSTÄTTER), A., i, 576.
Acetonitrile, conductivity of electrolytes in (DUTOIT and FRIDERICH), A., ii, 350.
 specific heat, and heat of vaporisation of (LUGNIN), A., ii, 354.
 action of cuprous chloride on (RABAUT), A., i, 557.

- Acetonitrile**, chloro-, from action of phosphorus pentachloride on dimethylglycolonitrile (HENRY), A., i, 256.
- β -Aceto-*p*-nitrophenyldimethylhydrazide** (HYDE), A., i, 689.
- β -Aceto-*p*-nitrophenylhydrazide** (HYDE), A., i, 688.
- Acetonuria** in phloridzin poisoning (GEELMUYDEN), A., ii, 235.
- Acetylacetonebisaminoguanidine** (THIELE and DRALLE), A., i, 8.
- Acetonylmethylpyridine chloride** (SCHMIDT), A., i, 5.
- Acetonylpiperidine** (SCHMIDT and KNUTEL), A., i, 229.
- hydrochloride (SCHMIDT), A., i, 5.
- Acetophenone**, conductivity of electrolytes in (DUTOIT and FRIDERICH), A., ii, 350.
- arsenic acid compound of (KLAGES and LICKROTH), A., i, 599.
- action of, on stannic bromide (GARELLI), A., ii, 271.
- action of phenanthraquinone on, in presence of ammonia (JAPP and MELDRUM), T., 1032; P., 1899, 166.
- condensation of, with benzil (WISLICHENUS and LEHMANN), A., i, 59.
- Acetophenone**, bromo-, action of primary, secondary, and tertiary bases on (SCHMIDT), A., i, 4.
- ω -chloro- (COLLET), A., i, 55.
- cyano-, preparation of (SEIDEL), A., i, 138.
- ω -iodo- (PAAL and STERN), A., i, 367.
- α -iodo-, and α -isomero- and salts (LUCAS), A., i, 433.
- isomero-, electrolytic conductivity and dissociation constant of, (HANTZSCH and VEIT), A., i, 402.
- Acetophenoneaminoguanidine** (WEDEKIND and BRONSTEIN), A., i, 829.
- Acetophenonediphenylhydrazone**, cyano- (SEIDEL), A., i, 139.
- Acetophenonephenanthraquinone**. See 9-Hydroxy-9-phenacylphenanthrone.
- Acetophenonephenylhydrazone**, cyano- (SEIDEL), A., i, 138.
- m*-nitro- (ROUGY), A., i, 753.
- p*-nitro- (HYDE), A., i, 689.
- Acetophenone-*o*-sulphophenylhydrazone**, *m*-nitro- (ROUGY), A., i, 753.
- Acetophenylamidobenzimidazole** (PINNOW and WISKOTT), A., i, 501.
- Acetophenylcarbamide** (WALTHER and WLODKOWSKI), A., i, 590.
- chloro- and thiocyno- (FRERICHS), A., i, 797.
- Acetophenylfurfurylamine** (MARQUIS), A., i, 798.
- β -Acetophenylhydrazide** (LEIGHTON), A., i, 51; (BAMBERGER), A., i, 108.
- Acetophenylhydrazidoformic acid**, ethylic salt (RUPE and LABHARDT), A., i, 356.
- Acetophenylhydrazonocarbodiphenylamine**, and tribromo- (SCHALL), A., i, 281.
- Acetophenylpiperidine**, hydrobromide (SCHMIDT), A., i, 5.
- Acetophenylsemicarbazide** (CURTIUS and BURCKHARDT), A., i, 137.
- Acetopropylamide**, β -*dibromo*-, and the action of water on it (CHIARI), A., i, 325.
- Aceto-*o*-propylanilide** (PICCININI and CAMOZZI), A., i, 74.
- Aceto- β -propylidenebenzenesulphonylhydrazide** (CURTIUS and LORENZEN), A., i, 149.
- Acetotetethyl-*m*-aminophenolsaccharin** (MONNET and KETSCHET), A., i, 213.
- Aceto-*m*-toluidide**, ω -*trifluoro*- (SWARTS), A., i, 197.
- o*- and *p*-**Acetotoluidides**, action of sulphonating agents on (ARMSTRONG), P., 1899, 178.
- Aceto-*o*- and *p*-tolylcarbamides** (WALTHER and WLODKOWSKI), A., i, 590.
- Acetotrimethyl-*m*-phenylenediamide** hydriodide (JAUBERT), A., i, 684.
- Acetoxime**, union of, with *p*-nitrodiazobenzene (BAMBERGER), A., i, 590.
- chloro-, derivatives of (MATTHAIPOULOS), A., i, 10.
- Acetoximephenylcarbamide**, chloro- (MATTHAIPOULOS), A., i, 10.
- p*-Acetoxy- α -benzamidocinnamic acid lactimide** (ERLENMEYER and HALSEY), A., i, 760.
- Acetoxybenzenazo-3 hydroxy-2'-phenyl-1-methylbenzoxazole** (HEINRICH), A., i, 172.
- Acetoxybenzodiphenylfurfuran** (JAPP and MELDRUM), T., 1041; P., 1899, 167.
- o*-**Acetoxybenzylacetanilide** (PAAL and HÄRTEL), A., i, 749.
- 2-Acetoxybenzylideneacetophenone**, 5-bromo- and dibromide (VON KOSTANECKI and LUDWIG), A., i, 220.
- o*-**Acetoxybenzyl-*m*- and *p*-nitracetanilides** (PAAL and HÄRTEL), A., i, 749.
- o*-**Acetoxybenzyl-*o*-nitraniline** (PAAL and HÄRTEL), A., i, 748.
- Acetoxychalkones** (VON KOSTANECKI and TAMBOR), A., i, 704.
- Acetoxydecanaphthene** (MARKOWNIKOFF and RUDEWITSCH), A., i, 582.
- 4-Acetoxydiacet-*o*-phenylenediamide** (KEHRMANN and GAUHE), A., i, 28.

- 2'-Acetoxy-4':6'-diethoxychalkone** and bromo-*di*bromide (VON KOSTANECKI, TAMBOR, and BEDNARSKI), A., i, 892.
- γ-Acetoxydiethylacetoacetic acid**, ethylic salt, and monobromo-derivative; also decomposition and hydrolysis (CONRAD and GAST), A., i, 193.
- 2'-Acetoxy-4':6'-dimethoxychalkone** and bromo-*di*bromide (VON KOSTANECKI, TAMBOR, and EMILEWICZ), A., i, 892.
- 2'-Acetoxy-3:4-dimethoxy-4'-ethoxychalkone** (VON KOSTANECKI and RÓŻYCKI), A., i, 911.
- 2'-Acetoxy-4':6'-dimethoxy-3:4-methylenedioxychalkone**, *di*bromo- (VON KOSTANECKI, TAMBOR, and HERSTEIN), A., i, 893.
- γ-Acetoxydimethylacetoacetic acid**, methylic salt, decomposition of (CONRAD and GAST), A., i, 114.
- 3-Acetoxy-1:2-dimethylbenzoxazole** (HENRICH), A., i, 172.
- Acetoxy-*aa*-dimethylglutaconic acid** and its anhydride and *p*-toluidide (REFORMATSKY), A., i, 482.
- β-Acetoxy-*aa*₁-dimethylglutaric acid** and its anhydride and monotoluidide (REFORMATSKY), A., i, 482.
- Acetoxydiphenylene ketone** (HEYL), A., i, 216.
- β-Acetoxyethanesulphonic acid**, *α*-bromo- (KÖHLER), A., i, 488.
- Acetoxyethylenesulphonic acid** (*acetylisethionic acid*), action of heat on (KÖHLER), A., i, 19.
- 2-Acetoxyflavone** (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 371.
- p*-Acetoxyhydrazobenzene**, transformation of (JACOBSON and TIGGES), A., i, 274.
- Acetoxyhydroxydiketonaphthadihydropyrazole** (VON PECHMANN and SEEL), A., i, 948.
- Acetoxyhydroxydimethylglutaric acid**, lactone of, and its aniline salt (LAWRENCE), T., 421.
- Aceto-*m*-xylylcarbamide** (WALTHER and WŁODKOWSKI), A., i, 591.
- 4-Acetoxy-3-methoxybenzonitrile**, 5-nitro- (VOGEL), A., i, 698.
- 2'-Acetoxy-3-methoxy-4:4'-diethoxychalkone** (VON KOSTANECKI and RÓŻYCKI), A., i, 912.
- 2-Acetoxy-4-methylantraquinone** (BISTRZYCKI and DE SHEPPER), A., i, 151.
- 4' Acetoxy-*α*-naphthylflavone** (KELLER and VON KOSTANECKI), A., i, 524.
- α*-Acetoxyphenylcrotonic acid**, *di*bromo- (THIBLE and MAYR), A., i, 612.
- β-Acetoxytetramethylglutaric acid** and its anhydride and paratoluidide, and its dissociation constant (MICHAILENKO), A., i, 482.
- Acetoxytrimethylsuccinic anhydride** (KOMPPA), A., i, 420.
- m*-Acetoxy-*p*-xylic acid** (PEPKIN), T., 189.
- Acetylacetone**, metallic derivatives of (URBAIN and DEBIERNE), A., i, 789. action of cyanogen on (TRAUBE), A., i, 192. condensation of, with anisamidine (GABRIEL and COLMAN), A., i, 639. condensation of, with ethylic phenylpropiolate (RUHEMANN,) T., 415; P., 1899, 15; (RUHEMANN and CUNNINGTON), T., 780; P., 1899, 169.
- Acetylacetone**, cyano-, from the decomposition of *dicyan*acetylacetone (TRAUBE), A., i, 192. *dicyano*- (*cyaniminomethylacetylacetone*), and the action of acetylacetone, ethylic acetoacetate, and alcohol on it (TRAUBE), A., i, 192. *dithio*-, compounds of, with ammonia and methylamine (VAILLANT), A., i, 415.
- Acetylacetonebisaminoguanidine**, nitrate of (THIELE and DRALLE), A., i, 8.
- Acetylacetonechloral** (GIGLI), A., i, 12.
- Acetylacetonephenylimide**, *dithio*-, and its *di*hydrochloride, and condensation product with benzidine (VAILLANT), A., i, 595.
- Acetylalizarin** (PERKIN), T., 447; P., 1899, 66.
- Acetylalochrysin** (OESTERLE), A., i, 538.
- Acetyl*iso*amylacetyl**. See Methyl *iso*-hexyl ketone.
- Acetylamylurethane**, chloro- and thio- (FRERICHS), A., i, 795, 796.
- α*-2 and β-2-Acetylangelicalactones** (KNORR and CASPARI), A., i, 194.
- Acetylanhydroidoneresorcinol ether** and **Acetylanhydronaphthaquinoneresorcinol** (LIEBERMANN), A., i, 523.
- p*-Acetylanisole**, compound of, with phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- Acetyl-2-anisylideneacetyl-1-naphthol** (KELLER and VON KOSTANECKI), A., i, 524.
- Acetylanisylidene-4-ethoxy-2-hydroxyacetophenone** (VON KOSTANECKI and OSIUS), A., i, 370.
- Acetylanisylidene-2-hydroxyacetophenone** (HERSTEIN and VON KOSTANECKI), A., i, 369.

- Acetylanisylidenepaeonol** (VON KOSTANECKI and OSIUS), A., i, 370.
- Acetyl-*o*-anisylpentahydro-1:3:5-dithiadiazine** (BUSCH and BEST), A., i, 955.
- Acetylation**, with the help of sulphuric acid (SKRAUP), A., i, 112.
- Acetylbenzoin-yellow** (GRAEBE), A., i, 220.
- Acetylbenzoylfurfuranoxime** (MARQUIS), A., i, 798.
- Acetylbenzylidenepaeonol** (EMILEWICZ and VON KOSTANECKI), A., i, 368.
- Acetylbrazelein** (HERZIG), A., i, 381.
- p*-Acetyltert. butylbenzene** (VERLEY), A., i, 425.
- Acetylsobutylurethane**, chloro- (FRIEDRICH), A., i, 795.
- γ -Acetylbutyric acid**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Acetylcalycin** (HESSE), A., i, 385.
- Acetylcamphoroxime** (FRANKFORTER and MAYO), A., i, 713.
- Acetylcannabinol** (WOOD, SPIVEY, and EASTERFIELD), T., 25.
- Acetylcarbinol** (*acetol*), formation of, by the action of bromine water on propylenic glycol (KLING), A., i, 787.
- Acetylcerin** (THOMS), A., ii, 324.
- Acetylbischlorindonophloroglucinol** (LIEBERMANN), A., i, 523.
- Acetylchlorindoneresorcinol ether** (LIEBERMANN), A., i, 523.
- Acetylchlorodextrose**, preparation of, and action on β -naphthol, *o*- and *p*-cresol and carvacrol (RYAN), T., 1055; P., 1899, 196.
- Acetylchlorogalactose**, preparation of, and its action on β -naphthol (RYAN), T., 1057; P., 1899, 196.
- Acetylcitryltriphenylhydrazide**, triacetyl derivative (MANUELLI and DE RIGHI), A., i, 885.
- Acetyldehydotetramethylhæmatoxyline** (GILBODY and PERKIN), P., 1899, 28.
- Acetodehydrotrimethylbrazilone** (GILBOBY and PERKIN), P., 1899, 28.
- Acetyldesmotroposantonins**, *d*- and *l*-, combination of, to form a lævorotatory compound (ANDREOCCI), A., i, 931.
- Acetyldesmotroposantonins**, *r*- and *l*- (ANDREOCCI and BERTOLO), A., i, 301.
- Acetyldesylthymol** (JAPP and MELDRUM), T., 1037; P., 1899, 167.
- γ -Acetyldiethylacetoacetic acid** (2:2-diethyl-3:5-hexanedionioic acid), ethylic salt, and copper derivative (CONRAD and GAST), A., i, 194.
- Acetyldiethylindolenineformoxime** (PLANCHER), A., i, 453.
- γ -Acetyl- $\beta\beta$ -dimethylbutyric acid**, rom action of phorone on ethylic sodio-malonate, and its methylic salt and semicarbazone (VORLÄNDER and GÄRTNER), A., i, 259.
- γ -Acetyl- $\gamma\gamma$ -dimethylbutyric acid**. See γ -Dimethylhexan- δ -onoic acid.
- ϵ -Acetyl- δ -dimethylheptioic acid**, and its oxime and semicarbazone (LESER), A., i, 743.
- 2-Acetyl-1:1-dimethylcyclohexanone-3**, and its semicarbazone (LESER), A., i, 743.
- Acetyldimethylisindazole** (BAMBERGER and WEILER), A., i, 124.
- Acetyldimethylphloroglucinol** (SCHNEIDER), A., i, 680.
- Acetyldimethyltetrazoline**, from action of heat on diacetylhydrazine (PELLIZZARI), A., i, 859.
- Acetyldinaphthaprasindone** (KEHRMANN and SUTHERST), A., i, 528.
- Acetyldiphenyl**, chloro- (COLLET), A., i, 56.
- α -Acetyl- $\beta\beta$ -diphenylacrylic acid**, ethylic salt, oxime and pyrazolone of (KLAGES and FANTO), A., i, 615.
- 5-Acetyl-4:6-diphenylpyridone** (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.
- Acetylene**, from calcium carbide, impurities in (CHUARD), A., i, 155. purification of (GÖTTIG), A., i, 657. boiling point of (LADENBURG and KRÜGEL), A., ii, 545. explosibility of, at low temperatures (CLAUDE), A., i, 397. explosibility of mixtures of, with hydrogen or coal gas (BERTHELOT and VIEILLE), A., ii, 412. pure, velocity of explosion of (BERTHELOT and LE CHATELIER), A., ii, 734. hydration of (BERTHELOT), A., i, 841. hydrogenation of, in presence of nickel, iron, cobalt, and copper (SABATIER and SENDERENS), A., i, 555. antiseptic properties of (VITALI), A., ii, 339. action of, on copper (ALEXANDER), A., i, 843. action of, on copper, rubidium, zinc, mercury, and iron, also on solutions of various metallic salts, and on cuprous oxide (ERDMAN and KÖTHNER), A., i, 21. action of iodine on (KEISER), A., i, 398. action of, on a solution of mercuric and sodium chlorides (HOFMANN), A., i, 486.

- Acetylene**, action of, on mercuric nitrate (KÖTHNER), A., i, 21; (HOFMANN), A., i, 97.
 action of ozone on (OTTO), A., ii, 282.
 action of, on sodium, potassium, lithium, and calcium ammoniums (MOISSAN), A., i, 241.
 action of sulphuric acid on (SCHROETER), A., i, 119; (BERTHELOT), A., i, 397.
 silver derivatives, and their heats of formation (BERTHELOT and DELÉPINE), A., i, 841.
 compound of, with cuprous oxychloride (CHAVASTELON), A., i, 22.
*di*bromide. See Ethylene, *di*bromo-*tetrabromide*. See Ethane, *tetrabromo-tetrachloride*. See Ethane, *tetrachloro-diiodide*. See Ethylene *diiodo*-
 detection of, in toxicology (VITALI), A., ii, 339.
Acetylene, *monobromo*- (MOUREU), A., i, 30.
Acetylenedicarboxylic acid, substance formed by action of phenylhydrazine on (LEIGHTON), A., i, 51.
 ethylic salt, action of piperidine and diethylamine on (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
 condensation of, with ethylic benzoylacetate, and with ethylic acetoacetate (RUHEMANN and CUNNINGTON), T., 785; P., 1899, 169.
Acetylenetetracarboxylic acid. See Ethanetetracarboxylic acid.
Acetylæthionic acid. See Acetoxyethylsulphonic acid.
Acetyl-*o*-ethoxy-2-benzylideneacetyl-1-naphthol (ALPERIN and VON KOSTANECKI), A., i, 524.
Acetyl-4-ethoxybenzylidene-2-hydroxyacetophenone (HERSTEIN and VON KOSTANECKI), A., i, 370.
Acetyl-2-ethoxybenzylideneresacetophenone, ethylic ether (VON KOSTANECKI and SALIS), A., i, 524.
Acetyl-*p*-ethoxyphenylmalamic acid (CAMPANARO), A., i, 350.
***p*-Acetyl ethylbenzene** (KLAGES and LICKROTH), A., i, 599.
Acetoethylurethane, chloro- and thiocyan- (FRERICHS), A., i, 795, 796.
Acetylfabianaresen (KUNZ-KRAUSE), A., i, 449.
2-Acetylfurfuran (BOUVEAULT), A., i, 120.
1:2-Acetylfurfuranoxime and its acetyl derivative (BOUVEAULT), A., i, 120.
Acetylfurfurylideneacetone (KELLER and VON KOSTANECKI), A., i, 525.
Acetylisoheptyldioxime (*acetylisoamyl-acetyldioxime*), **Acetylisoheptylosazone**, ***Ba*-Acetylisoheptylphenylhydrazoxime** (PONZIO and DE GASPARI), A., i, 253.
Acetylhexoyl. See Methyl amyldiketone.
Acetylisohehexoyl. See Methyl isoamyl diketone.
Acetylisoheptyldioxime, ***B*-Acetylisohehexyl-phenylhydrazone** and **-osazone**, ***Ba*-Acetylisohehexylphenylhydrazoxime** (PONZIO and DE GASPARI), A., i, 252.
Acetyl-*p*-hydroxybenzoic acid (VERLEY), A., i, 426.
5-Acetyl-2-hydroxy-4:6-diphenylpyridine and its silver compound (RUHEMANN and CUNNINGTON), T., 781; P., 1899, 169.
Acetylidene diiodo-, action of, as a poison (LOEW), A., ii, 169.
Acetylallic acid, ethereal salts, densities, specific rotations, and molecular volumes of (FRANKLAND), T., 357.
Acetylleucoethylene-blau (COHN), A., i, 809.
Acetylmalic acid, and bromo-, ethereal salts, specific rotations, and molecular volumes of (FRANKLAND), T., 348, 351.
Acetylmesitylene (NOYES), A., i, 286.
Acetomethylcarbamide, chloro- and thiocyan- (FRERICHS), A., i, 796, 797.
Acetyl-2'-methyl-3:3'-diethylindoline (PLANCHER), A., i, 450.
Acetylmethylethylheptenone (BARBIER and LÉSER), A., i, 111; (LÉSER), A., i, 190.
Acetylmethylheptenone (*2-methyl-2-nonene-6:8-dione*), formation of (LÉSER), A., i, 190.
 and its copper derivative, oxazole and dioxime; also the action of ethylic monochloracetate and of ethylic iodide on its sodium derivative (BARBIER and LÉSER), A., i, 110.
 action of sulphuric acid on (LÉSER), A., i, 479.
Acetyl-*p*-methylhydrazobenzene (JACOBSON and LISCHKE), A., i, 276.
Acetylmethylmorpholquinone, oxidation of (VONGERICHTEN), A., i, 307.
Acetylmethylcyclopentenedicarboxylic acid, *dämino*-, monethylic salt (TRAUBE), A., i, 192.
Acetylmethylcyclopentenoneoxime (BOUVEAULT), A., i, 120.
Acetylmethylphloroglucinol, *dichloro*- (SCHNEIDER), A., i, 679.
Acetylmorphine ethylic carbonate (MERCK), A., i, 649.

- 2-Acetyl-1-naphthol**, condensation of, with anisaldehyde and with furfuraldehyde (KELLER and VON KOSTANECKI), A., i, 524, 525.
- Acetylnataloin** (LÉGER), A., i, 821.
- Acetylnitrosinduline** (KEHRMANN, RADEMACHER, and FEDER), A., i, 235.
- Acetylnitrosophenylindole** (SPICA and ANGELICO), A., i, 938.
- Acetylroselone** (SCHMIDT, JASSOY, and HAENSEL), A., i, 378.
- Acetylpalmityldioxime** (PONZIO and GASPARI), A., i, 861.
- Acetylcyclopentanediol** (MEISER), A., i, 742.
- p-Acetylphenetol**, compound of, with phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- Acetophenylidithiobiuret** (FROMM and PHILIPPE), A., i, 485.
- Acetylphenylmethane, dinitro-** (MUTTELET), A., i, 435.
- Acetyl-3-phenyl-1-methylcyclohexanol-5** (KNOEVENAGEL and GOLDSMITH), A., i, 290.
- Acetyl-4'-phenyl-3-methyl-2'-ketotetrahydroquinazoline** (HANSCHKE), A., i, 776.
- Acetylphenylnitroethanol, o-nitro-** (THIELE), A., i, 585.
- 2-Acetyl-1-phenyltriazoline, 3-imino-** and acetyl derivative (BAMBERGER and VON GOLDBERGER), A., i, 547.
- Acetylphenylurazole** (CUNEO), A., i, 9.
- Acetylphloroglucinol ethylic and diethylic ethers**, and condensation products obtained on hydrolysis (HERZIG), A., i, 32.
- Acetypicrotin** (MEYER and BRUGER), A., i, 227.
- Acetylpiperonal-2-hydroxyacetophenone** (FEUERSTEIN and VON KOSTANECKI), A., i, 369.
- Acetylpiperonalpaeonol** (EMILEWICZ and VON KOSTANECKI), A., i, 369.
- Acetylcyclopropane** (*acetyltrimethylene*), preparation and oxidation of (IDZKOWSKA and WAGNER), A., i, 489.
- Acetylcyclopropanetricarboxylic acid** and its ethylic salt (RUHEMANN and CUNNINGTON), T., 785; P., 1899, 169.
- α -Acetylpropionic acid, β -cyano- β -imino-**. See Acetoacetic acid, dicyano-.
- β -Acetylpropionic acid**. See Lævulic acid.
- α -Acetylpropylic alcohol, $\alpha\beta$ -dithiocyano-** (*α -acetyl- $\alpha\beta$ -dithiocyanhydrin*) from action of potassium thiocyanate on $\alpha\beta$ -dibromopropylic acetate (ENGLE), A., i, 3.
- Acetylisopropylphenylmethylcyclohexanol** (KNOEVENAGEL, WEDEMEYER, and GIESE), A., i, 291.
- $\alpha\beta$ -Acetylisopropylpropane- $\alpha\gamma\gamma$ -tricarboxylic acid**, ethylic salt (BARBIER and GRIGNARD), A., i, 113.
- Acetylpyridylacetonylchloride oxime** (SCHMIDT and KNUTTEL), A., i, 229.
- Acetylquinoneoxime, m-chloro-**, stable and labile forms of, *p*-dichloro- (KEHRMANN and GRAB), A., i, 129.
- Acetylresorcinolsaccharein** (MONNET and KETSCHET), A., i, 213.
- Acetylrhizocarpic acid** (HESSE), A., i, 384.
- Acetylapposaffranine carbonate** (SCHAPOSCHNIKOFF), A., i, 431.
- Acetylsalicylaldehyde** (REYCHLER), A., i, 56.
- Acetylsalicylic acid** (*aspirin*), physiological action of (DRESER), A., ii, 605.
- Acetylstearyldioxime** (PONZIO and GASPARI), A., i, 861.
- Acetylstilbenediol** (THIELE), A., i, 609.
- Acetylstrophanthin** (KOHN and KULISCH), A., i, 159.
- Acetylsuccinic acid**, ethylic salt, action of methylic iodide on the sodium derivative of (BONE and SPRANKLING), T., 848.
- action of *p*-phenetidine on (FOGLINO), A., i, 132.
- Acetylsuccinic acid, dibromo-**, ethylic salt, action of potassium carbonate and potash on (SMENOFF), A., i, 792.
- conversion of, into aconitic acid (CONRAD), A., i, 481.
- Acetylsulphanilic acid**, action of bromine on (ARMSTRONG), P., 1889, 177.
- Acetyltartaric acid, trichloro-**, ethereal salts of, densities, specific rotations and molecular volumes of (FRANKLAND), T., 363.
- Acetyltetramethylpyrrolidine- β -carboxylamide** (PAULY and ROSSBACH), A., i, 773.
- Acetylthiophenine** (RIMINI), A., i, 872.
- Acetylthujetin**, m. p. of (PERKIN), T., 829.
- Acetylthymylic methylic ether** (VERLEY), A., i, 434.
- o*-, *m*-, and *p*-**Acetyltoluenes** (KLAGES and LICKROTH), A., i, 599.
- Acetyltoluquinoneoxime, 4-bromo-** (two forms of) and 4-chloro- (KEHRMANN and RÜST), A., i, 129.
- Acetyl-*p*-tolylidithiodiazolonethiol** (BUSCH and VON BAUR-BREITENFELD), A., i, 951.
- Acetyltrimethylene**. See Acetylcyclopropane.

Acetylurazole (CUNEO), A., i, 9.

Acetylurethanes, chloro-, action of alkyl sulphinates and of potassium hydrosulphide on (FRERICHS), A., i, 795, 796.

Acetylvaleraldehyde (FREYSS), A., i, 874.

Acetylvaleryl. See Methyl butyl diketone.

4-Acetyl-o-xylene, from fenchone (MARSH), T., 1058; P., 1899, 196.

Acetyl-m-xylene, 2-bromo- (NOYES), A., i, 285.

4-Acetyl-m-xylene, 5-bromo- and 5-iodo- (NOYES), A., i, 285.

Acid, $C_5H_5O_2Cl$, from action of potash on chloralacetone or on trichlorethylideneacetone (SALKIND), A., i, 734.

$C_7H_{10}O_2$, from carvenolic acid and potash, and the dibromide (WALLACH), A., i, 532.

$C_7H_{12}O_3$, from camphoquinone (MANASSE and SAMUEL), A., i, 300.

$C_7H_{12}O_5$, from action of baryta on isoterebic acid (FITTIG and PETKOW), A., i, 336.

$C_8H_8O_6$ from acid $C_{10}H_{10}O_9$ (GILBODY and PERKIN), P., 1899, 28.

$C_8H_{12}O_5$, from camphoric acid by oxidation; strychnine salt (BALBIANO), A., i, 537.

$C_8H_{12}O_5$, from oxidation of camphoric acid, reduction of (BALBIANO), A., i, 867.

$C_8H_{14}O_5$, from action of alkalis on the salts of isopropylisoparaconic acid (FITTIG and BURWELL), A., i, 337.

$C_9H_{16}O_2$, from camphoric anhydride and aluminium chloride (LEES and PERKIN), P., 1899, 24.

$C_{10}H_6O_5N_2$, from $\beta\beta$ -dinitroso- α -naphthaquinone (ZINCKE and OSSENBECK), A., i, 766.

$C_{10}H_8O_5$ (ZINCKE and OSSENBECK), A., i, 766.

$C_{10}H_{10}O_6$, from oxidation of dimethylbrazilin (GILBODY and PERKIN), P., 1899, 75.

$C_{10}H_{10}O_9$ from acid $C_{12}H_{12}O_6$ from oxidation of trimethylbrazilin (GILBODY and PERKIN), P., 1899, 28.

$C_{10}H_{12}O_8$, and ethylic salt from condensation of ethylic glutaconate (PECHMANN), A., i, 870.

$C_{10}H_{16}O_4$, from dipentamethenylpinacolin (MEISER), A., i, 742.

$C_{10}H_{18}O_2$, from Bourbon essence of geranium (FLATAU and LABBÉ), A., i, 65.

$C_{10}H_{18}O_3$, from action of sulphuric acid on acetylmethylheptenone, and its ethylic salt, and oxime (LÉSER), A., i, 479.

Acid, $C_{11}H_{12}O_7$, from oxidation of tetramethylhæmatoxylone (GILBODY and PERKIN), P., 1899, 29.

$C_{11}H_{18}O_4$, from reduction of the acid $C_{11}H_{18}O_5$ (FITTIG and STUBER), A., i, 417.

$C_{11}H_{18}O_5$, from action of soda on bromohexylisoparaconic acid, and its reduction (FITTIG and STUBER), A., i, 417.

$C_{12}H_{12}O_6$, from oxidation of trimethylbrazilin (GILBODY and PERKIN), P., 1899, 28.

$C_{12}H_{12}O_7$, from lactone obtained by oxidising trimethylbrazilin (GILBODY and PERKIN), P., 1899, 28.

$C_{12}H_{22}O_4$ or $C_{12}H_{20}O_4$, from action of alkalis on 2-bromo-3-dimethyl-4-methylpentane-2:5-olidoic acid (BALBIANO), A., i, 868.

$C_{14}H_{23}O_2$, from Indian essence of geranium (FLATAU and LABBÉ), A., i, 65.

$C_{15}H_{20}O_2$, from camphoric anhydride and benzene, behaviour of, towards hydriodic acid (BLANC), A., i, 444.

$C_{15}H_{24}O_4$, from citral and malonic acid (VERLEY), A., i, 769.

$C_{15}H_{26}O_3$, from oil of caparrapi (TAPIA), A., i, 533.

$C_{16}H_{10}O_4$, obtained by reducing dithiodiphtalyllic acid, tetramethylic derivative (GABRIEL and LEUPOLD), A., i, 122.

$C_{16}H_{16}N_2O_3$, from anilinoacetonitrile and benzaldehyde (MILLER, PLÖCHL, and LUPPE), A., i, 128.

$C_{16}H_{20}O_6$, from the action of sodium on ethylic isopropylisoparaconate (FITTIG and THRON), A., i, 338.

$C_{16}H_{24}O_4$, from hydrolysis of the product of interaction of ethylic sodiomalonate and mesityl oxide; ethylic and silver salts, dibromo-derivative and dihydrobromide; also oxidation (CROSSLEY), P., 1898, 247.

$C_{17}H_{18}O_3N_2$, from anhydroformaldehyde-*p*-toluidine and benzaldehyde (MILLER, PLÖCHL, and SIEBER), A., i, 128.

$C_{17}H_{18}O_3N_2$, from benzyldienemethylamine and benzaldehyde (MILLER, PLÖCHL, and KOLLEGORSKY), A., i, 128.

$C_{17}H_{18}O_3N_2$, from ethylideneaniline and benzaldehyde (MILLER, PLÖCHL, and HAMBURGER), A., i, 128.

$C_{18}H_{14}O_4$ and $C_{18}H_{16}O_5$, from diphenylbromobutyrolactoneacetic acid (STOBBE and RUSSWURM), A., i, 903.

Acid, $C_{18}H_{14}O_8$, from γ -phenyl- γ -benzylidene pyrotartaric acid (STOBBE and RUSSWURM), A., i, 903.

$C_{18}H_{34}O_3$, from quince-seed oil, and ethylic salt, and acetyl and dibromo-derivatives (HERMANN), A., i, 822.

$C_{20}H_{14}O_7$, obtained by condensation of oxalic acid and resorcinol, and its salts, and triacetyl, benzoyl, *d*-nitro-, and tetrabromo-derivatives (HEWITT and PITR), T., 518; P., 1899, 100.

$C_{23}H_{22}N_2O_4$, from benzaldehyde and phenyl-*p*-anisidoacetonitrile (MILLER, PLÖCHL, and SCHEITZ), A., i, 128.

$C_{25}H_{26}O_3N_2$, from cuminaldehyde and benzylideneaniline (MILLER, PLÖCHL, and GERNGROSS), A., i, 127. from *Endocarpon minutum* (HESSE), A., i, 382.

m. p. 42° , from quince-seed oil (HERMANN), A., i, 822.

m. p. 85° , from oxidation of yohimbine (SPIEGEL), A., i, 966.

m. p. 163° , from *Umbilicaria pustulata* (HESSE), A., i, 382.

m. p. 180° , from *Beomyces roseus* (HESSE), A., i, 384.

nitrogenous, obtained by reducing ω -2-*d*-nitromesitylene (BAMBERGER and WEILER), A., i, 124.

sulphonic, barium salt, $(C_2H_5O_2BrS_3)Ba_3 \cdot 4H_2O$, from action of sulphuric acid on barium brom-ethylenesulphonate, and its decomposition (KÖHLER), A., i, 489.

Acid-cellulose and lactone; also action of nitric acid on (BUMCKE and WOLFF-ENSTEIN), A., i, 853.

Acidimetry, iodometric (FESSEL), A., ii, 802.

standard solutions for (PUCKNER), A., ii, 610.

Acids, electrolysis of (BOSE), A., ii, 349.

volume changes on mixing equivalent quantities of bases with, in methylic alcohol (MINOZZI), A., ii, 642.

demonstration of the relative strength of, by means of Congo red paper (BRUN), A., i, 861.

physiological action of (LOEB), A., ii, 167; (ZOETHOUT), A., ii, 235.

estimation of, by iodine (WALKER and GILESPIE), A., ii, 327.

Acids, monobasic, of the sugar group, preparation of (RUFF), A., i, 869.

Acids, dibasic, formed by the oxidation of fats, separation of (BOUVEAULT), A., i, 480.

monethylic salts, preparation of the chlorides of (BLAISE), A., i, 331.

Acids, fatty, determination of the constitution of (CROSSLEY and LE SUEUR), T., 161; P., 1898, 219.

surface tension of aqueous solutions of (FORCH), A., ii, 641.

etheral salts of, electrical absorption and dispersion of (LÖWE), A., ii, 200.

saturated, melting points of (SOLOMINA), A., ii, 633.

higher, interval between melting point and boiling point of, under diminished pressure (KRAFFT), A., ii, 465.

normal, chlorides of, alternation in volatility in the series of (HENRY), A., i, 735.

detection and separation of, by means of tetrachloroquinol (BOUVEAULT), A., i, 790.

estimation of, in butter (HENRIQUES), A., ii, 258.

iodine number of (ZEGA and MAJSTOROVIC), A., ii, 820.

Acids of the oxalic series, relations between the melting points and molecular weights of (MASSOL), A., i, 738. normal solubility of (LAMOUROUX), A., i, 479.

Acids, pseudo-, and tests for their existence (HANTZSCH), A., i, 399.

Acids (or their salts or derivatives). See also:—

Acetalazinetetrasulphonic acid.

Acetaldehydedisulphonic acid.

Acetaldehydophenylhydrazonedisulphonic acid.

Acetaldoximedisulphonic acid.

Acetalmalonic acid.

Acetalmethylmalonic acid.

Acetamidonaphthaquinonesulphonic acid.

Acethydroxamic acid.

Acetic acid.

Acetoacetic acid.

Acetobutyric acid.

Acetohydroxybenzoic acid.

Acetonedicarboxylic acid.

Acetoneoxalic acid.

Acetonetricarboxylic acid.

Acetophenylhydrazidoformic acid.

γ -Acetoxydiethylacetoacetic acid.

Acetoxydimethylacetoacetic acid.

Acetoxy- $\alpha\alpha_1$ -dimethylglutaconic acid.

β -Acetoxy- $\alpha\alpha_1$ -dimethylglutaric acid.

β -Acetoxyethanesulphonic acid.

Acetoxyethylsulphonic acid (*acetylisethionic acid*).

Acetoxyhydroxydimethylglutaric acid.

α -Acetoxyphenylserotonic acid.

β -Acetoxytetramethylglutaric acid.

Acetoxy-xylic acid.

γ -Acetyldiethylacetoacetic acid.

Acids. See :—

Acetyldimethylbutyric acid.
 Acetyldimethylheptoic acid.
 Acetyldiphenylacrylic acid.
 Acetylenedicarboxylic acid.
 Acetylenetetra-carboxylic acid (*ethane-tetra-carboxylic acid*).
 Acetylthoxyphenylmalamic acid.
 Acetylthiolic acid.
 Acetylmalic acid.
 Acetylmethylcyclopentenedicarboxylic acid.
 Acetylpropionic acids.
 Acetylisopropylpropanetricarboxylic acid.
 Acetylsalicylic acid.
 Acetylsuccinic acid.
 Acetyltartaric acid.
 Acetyltrimethylenetricarboxylic acid.
 Aconic acid.
 Aconitic acid.
 Acrylacetic acid (*tetric acid*).
 Adipic acid.
 Alanine.
 β -Aldehydeisobutyric acid.
 Aldehydophenoxyacetic acid.
 β -Aldehydopropionic acid.
 o-Aldoximephenoxyacetic acid.
 Aleuritic acid.
 Allylacetic acid (*pentenoic acid*).
 Allylparabanic acid.
 Allylthioparabanic acid.
 iso-Amylacetic acid (*heptoic acid*).
 iso-Amylacetoacetic acid.
 α -iso-Amylcrotonic acid.
 iso-Amylidenebismalonic acid.
 iso-Amylmalonic acid.
 iso-Amylphosphinic acid.
 iso-Amylphosphinous acid.
 iso-Amylsuccinic acid.
 iso-Amylthiophosphinic acid.
 iso-Amylxanthic acid.
 Anemonolic acid.
 Anhydracetonebenzil- β -carboxylic acid.
 α -Anhydrobenzillævulic acid.
 Anhydrocamphoronic acid.
 Anhydrohomocamphoronic acid.
 Anilinedisulphonic acid.
 Anilinoacetic acid.
 Anilino benzoic acid.
 Anilino benzylacetoacetic acid.
 β -Anilino- α -carboxyglutaric acid.
 γ -Anilino dimethylacetoacetic acid.
 Anisic acid.
 Anisoilsulphonic acid.
 Anisoilsulphonic acid.
 Anisyldithiocarbazineic acid.
 Anisyldenediacetoacetic acid.
 Anisyldenemalonic acid.
 Anthranilic acid.
 Antimonylgallic acid.

Acids. See :—

Arabic acid.
 Arabonic acid.
 Arachidic acid.
 Asparagine.
 Aspartic acid.
 Atranoric acid.
 Azaurolic acid.
 Azelaic acid.
 Azinocarbonic acid.
 Azobenzene-carboxylic acid.
 Barbatic acid.
 Barbituric acid.
 Beetroot-resin acid.
 Benzamidobenzoic acid.
 Benzenaezoacetoacetic acid.
 Benzenesulphonic acid.
 Benzenesulphonic acid.
 Benzhydroxamic acid.
 Benzil-o-carboxylic acid.
 Benzilic acid.
 Benzimidazole-dicarboxylic acid.
 Benzimidoxydiphenylacetic acid.
 Benzoic acid.
 Benzophosphinic acid.
 Benzoxhydroxydimethylglutaric acid.
 Benzoylacetic acid.
 Benzoylacetoacetic acid.
 Benzoylacrylic acid.
 Benzoylalanine.
 Benzoylaspartic acid.
 Benzoylbenzhydroxamic acid.
 Benzoylbenzoic acid.
 Benzoyldimethylcrotonic acid.
 Benzoylthiethylthiocarbamic acid.
 Benzoylglutamic acid.
 Benzoylmalic acid.
 β -Benzoylpropionic acid.
 Benzoyltartaric acid.
 Benzoylthiocarbamic acid.
 Benzoyltrimethylenetricarboxylic acid.
 Benzylbenzylidenepyrrotartaric acid.
 Benzylcyanacetic acid.
 Benzylformylhydroxamic acid.
 Benzylglutaconic acid.
 Benzylideneanhydracetonebenzil- α -carboxylic acid.
 Benzylidene- α -anhydrobenzillævulic acid.
 Benzylideneanilinoacetoacetic acid.
 Benzylidene-bisacetoacetic acid.
 Benzylidenecornicularic acid.
 Benzylidenediacetoacetic acid.
 Benzylidene- α -glucoheptonic acid.
 Benzylidenehydrazinesulphonic acid.
 Benzylidenemalonic acid.
 Benzylidenephenoacylcinnamic acid.
 Benzylidene-d-saccharic acid.
 Benzylmalonic acid.
 Benzylmethylketone-o-carboxylic acid.
 Benzylloxybenzenesulphonic acid.
 Benzylparaconic acid.

Acids. See:—

Benzylphthalaminic acid.
 Benzylpyruvic acid.
 Benzylsuccinic acid.
 Bilianic acid.
iso-Bilianic acid.
 Biliverdic acid.
 Bisacetoaceticazodiphenyldicarboxylic acid.
 Bisacetonediphenyldihydratededicarboxylic acid.
 Bisdiazoiminodiphenyldicarboxylic acid.
 Bismesoxalicedihydratediphenyldicarboxylic acid.
 Bisphenolazodiphenyldicarboxylic acid.
 Boheic acid.
l-Bornylic acid.
 Boswellic acid.
 Brassidic acid.
 Brucinic acid.
cyclo-Butanecarboxylic acid.
 Butanedicarboxylic acid.
cyclo-Butanedicarboxylic acid.
 Butanetetracarboxylic acid.
 Butoxysuccinic acids.
iso-Butylacetic acid (*hexoic acid*).
iso-Butylisacetic acid.
iso-Butylatronic acid.
 Butylbenzoic acid.
iso-Butylcitraconic acid.
 Butylenedicarboxylic acid.
iso-Butylethanetricarboxylic acid.
β-*iso*-Butylglutaric acid.
iso-Butylideneacetoacetic acid.
iso-Butylidenebismalonie acid.
 Butylmalonic acid.
iso-Butylmesaconic acid.
iso-Butylparaconic acids.
 Butylphenylglyoxylic acid.
iso-Butylphosphinic acid.
iso-Butylphosphinous acid.
iso-Butylpyruvic acid.
iso-Butylsuccinic acid.
iso-Butylxanthic acid.
n- and *iso*-Butyric acids.
 Butyrylmalic acid.
iso-Butyrylmalic acid.
iso-Butyrylmalonic acid.
allo-Caffuric acid.
 Camphanic acids.
 Camphoceenic acid.
 Camphoceonic acid.
 Camphoic acid.
 Camphononic acid.
 Camphorenic acid.
 Camphoric acid.
iso-Camphoronie acid.
 Camphosulphonic acid.
 Cannabinolactonic acid.
 Cantharic acid.

Acids. See:—

iso-Cantharidic acid.
 Caperatic acid.
 Capric acid (*decoic acid*).
 Caproic acid (*hexoic acid*).
 Caprylic acid (*octoic acid*).
 Carbonamidohydrazopropionic acid.
 Carbonylphenylcarbazine acid.
iso-Carbopyrotaric acid.
α-Carboxy-*α'*-acetylalpic acid.
 Carboxybenzenesulphonic acid.
 Carboxyapocamphoric acid.
 Carboxyglutaric acid.
 Carboxymethylfurfuranacetic acid.
 Carboxyoxalacetic acid.
o-Carboxyphenylacetic acid.
 Carboxyphenyl-diphenylpyrazoline.
 Carboxyphenylethylpropionic acid.
 Carboxyphenylmethylpropionic acid.
 Carboxyphenyl-phenylisooxazoline.
 Caronic acid.
 Catechoylcarboxylic acid.
 Cerotic acid.
 Cetraric acid.
 Cholic acid.
 Chrysammic acid.
 Chrysotropic acid.
 Cilianic acid.
 Cincheninesulphonic acid (*cinchinesulphonic acid*).
 Cineolenic acid.
 Cineolic acid.
 Cinnamaldehyde, sulphonic acids of.
 Cinnamenylsuccinic acid.
 Cinnamic acid.
 Cinnamylformic acid.
 Cinnamylidenedimethylcrotonolactonecarboxylic acid.
 Cinnamylidenemalonie acid.
 Citraconic acid.
 Citral, hydrosulphonic acids of.
 Citralidenecyanacetic acid.
 Citramalic acid (*methylmalic acid*).
 Citrapyrotartaric acid (*methylsuccinic acid*).
 Citrazinic acid.
 Citric acid.
 Citronellal, hydrosulphonic acids of.
 Citronellie acid.
 Citronellylidenecyanacetic acid.
 Citrylidenemalonie acid.
 Citryl-*β*-naphthacinchonic acids.
 Coccellic acid.
 Cornicularic acid.
 Coumaric acid.
 Coumarincarboxylic acid.
 Crotonic acid.
 Cumenesulphonic acid.
 Cumenylanilinoacetic acid.
 Cuminylidenediacetoacetic acid.
 Cumylidenemalonie acid.
 Cyanuric acid.

Acids. See:—

iso-Cymenesulphonic acid.
 Cymylcarboxylic acid.
 Cymylglyoxylic acid.
 Decoic acid.
 Dehydrocamphenylic acid.
 Dehydromucic acid.
 Deoxybenzoinindicarboxylic acid.
 Dextrinic acid.
 Diacetamidodiphenyldicarboxylic acid.
 Diacetoacetic acid.
 Diacetophenylcrotonic acid.
aa-Diacetyladipic acid.
 Diacetylgllyceric acid.
 Diacetylmethylcyclopentenecarboxylic acid.
 Diacetylsuccinic acid.
 Diacetyltartaric acid.
*Diiso*amylacetic acid (*dodecoic acid*).
*Diiso*amylmalonic acid.
 Dianisylacetic acid.
 Dianisylidihydrazonocynoacetic acid.
 Dianisylidihydrazonemalonic acid.
 Diazoacetic acid.
 Diazobenzenesulphonic acid.
 Diazotriazolecarboxylic acid.
 Dibenzamidodiphenyldicarboxylic acid.
 $\beta\beta$ -Dibenzoylisobutyric acid (*diphenylacetic acid*).
 $\beta\beta$ -Dibenzoylcyanoisobutyric acid (*diphenylcyanacetic acid*).
 Dibenzoylglutaric acid.
 Dibenzoylglyceric acid.
 Dibenzoylmesitylenic acid.
 Dibenzoylsuccinic acid.
 Dibenzoyltartaric acid.
 Dibenzoyltrimesic acid.
 Dibenzoyluvic acid.
 Dibenzylcyanoacetic acid.
 Dibenzylidene-*l*-idonic acid.
 Dibenzylidenepropionic acid.
 Dibenzylidene-*l*-xylonic acid.
 Dibutyltartaric acid.
 Dicampherylic acid.
 Dicarbintetracarboxylic acid (*ethylene-tetracarboxylic acid*).
 Dicarboxyglutacetic acid.
aa-Dicarboxymethoxycarballylic acid.
 Dicarboxyphenylic bisulphide.
o-Diethoxydiphenyltetrahydropyrone-dicarboxylic acid.
 Diethoxysuccinic acid.
 Diethylacetoacetic acid.
 Diethylallylmalonic acid.
 Diethylaminobenzoylbenzoic acid.
 Diethylaminocinnamic acid.
 Diethylaminomaleic acid.
 Diethylanilinedithionamic acid.
 Diethylcyanoacetic acid.
 Diethylindoleninecarboxylic acids.
 β -Diethylactic acid.

Acids. See:—

β -Diethylmalic acid.
 Diethylphosphinic acid.
 Diethyl α thiocarbamic acid.
 Digallic acid.
 Digitalonic acid.
 Digitic acid.
 Digitogenic acids.
 Digitsic acid.
 Digitoxic acid.
 Digitoxosecarboxylic acid.
 Diglutaric acid.
 Diglycolamic acid.
 Dihexoyltartaric acid.
 Dihydrociscampholytic acid.
 Dihydrocamphoric acid.
 Dihydroisolauroic acid.
 Dihydro- ψ -lauronic acid.
 Dihydroterephthalic acid.
 Dihydrouvic acid.
 Dihydroxybehenic acids.
 Dihydroxybutyric acid.
 Dihydroxycamphoceenic acid.
 Dihydroxycinnamic acid.
 $\alpha\beta$ -Dihydroxy-*aa*-diethylglutaric acid.
 Dihydroxydimethylacetoacetic acid.
 $\alpha'\beta$ -Dihydroxy-*aa*-dimethylglutaric acid.
 Dihydroxydioxy- $\beta\beta'$ -dipyridyldicarboxylic acid.
 Dihydroxydiphenyldicarboxylic acid.
 Dihydroxyhexoic acid (*propylglyceric acid*).
 Dihydroxymaleic acid.
 Dihydroxymethylisobutylideneacetic acid.
 $\beta\gamma$ -Dihydroxy-*aa*-methylethylglutaric acid.
 Dihydroxynicotinic acid.
 Dihydroxynonoic acid.
 Dihydroxyphenylacetic acid.
 Dihydroxyphenylpyridinecarboxylic acid.
 $\alpha\beta$ -Dihydroxypropionic acid (*glyceric acid*).
 Dihydroxystearic acids.
 Dihydroxysuccinic acid.
 Dihydroxyvaleric acid (*α -ethylglyceric acid*).
 Di-isatic acid.
 Diketobutyric acid.
 4 : 7-Diketoheptanecarboxylic acid.
 Diketophenoheptamethylenedicarboxylic acid.
 Dimalodiaspartic acid.
 Dimalohexaspartic acid.
 Dimercuracetic acid.
 Dimethoxyphenylglyoxylic acid.
 Dimethoxysuccinic acid.
 Dimethylacetoacetic acid.
 Dimethylsuccinic acids.

Acids. See:—

Dimethylacrylic acid (*pentenoic acid*).
 Dimethylallylmalonic acid.
 Dimethylaminobenzoylbenzoic acid.
 Dimethylaminobenzylbenzoic acid.
 Dimethyl-*o*-aminophenolsulphonic acid.
 Dimethylaminothiobenzoic acid.
 Dimethylanilinesulphonic acids.
 Dimethylaniline-*p*-thionamic acid.
 Dimethylanilinophthaloylic acid.
 Dimethylatronic acid.
 Dimethylbenzimidazolonecarboxylic acid.
 Dimethylbutanetricarboxylic acid.
 Dimethylbutyric acid (*hexoic acid*).
 Dimethylcitraconic acid.
aa-Dimethyl-*aa*-dicarboxymethoxytricarballic acid.
 Dimethyldihydroresorcylic acid.
 Dimethyleneasparagine.
 Dimethylethylbenzoic acid.
 Dimethylfumaric acid (*β -methylmesaconic acid*).
iso-Dimethylfurfurandicarboxylic acid (*isocarbopyrrotritaric acid*).
 Dimethylglutaconic acid.
aa-Dimethylglutaramic acid.
 $\beta\beta$ -Dimethylglutaranilic acid.
 Dimethylglutaric acids.
 Dimethylgranatenic acid.
 Dimethylheptanonoic acid.
 Dimethylcyclohexanecarboxylic acid.
 Dimethylhexanoic acid.
 Dimethylcyclohexenecarboxylic acid.
 Dimethylhydrofurfurancarboxylic acid.
 Dimethylhydroresorcylic acid.
 Dimethylitaconic acid.
 Dimethylkavulic acid.
 Dimethylmaleic acid (*pyrocinchonic acid*).
 Dimethylmesaconic acid.
 3-Dimethyl-4-methylpentane-2 : 5-olidic acid.
 Dimethyl- α -naphthoic acid.
 Dimethylisoparaconic acid (*isoterebic acid*).
 Dimethylcyclopentanedionedicarboxylic acid.
 Dimethylcyclopentanonecarboxylic acid.
 Dimethylphthalic acid.
 Dimethylcyclopropanedicarboxylic acid.
 $\beta\beta$ -Dimethylpropanetetra-carboxylic acid.
 $\beta\beta$ -Dimethylpropanetricarboxylic acid.
 Dimethylpropionic acid (*valeric acid*).
 Dimethylpyrimidinecarboxylic acid.
 Dimethylsuccinic acids.
 Dimethyltartaric acid.

Acids. See:—

Dimethylterephthalamic acid.
 Dimethylterephthalic acid.
 Dioxysuccinic acid.
 3 : 9-Dimethyluric acid.
 Diphenacylacetic acid.
 Diphenacylcyanooacetic acid.
 Diphenylacetic acid.
 Diphenylacetic acid.
 Diphenylaminecarboxylic acid.
 Diphenylbuteninecarboxylic acid.
 Diphenylbutyrolactoneacetic acid.
 Diphenylcarbamic acid.
 Diphenylcarbamededicarboxylic acid.
 Diphenylcarboxylic acid.
 Diphenylcrotonolactoneacetic acid.
 Diphenylcrotonolactonecarboxylic acid.
 Diphenyldicarboxylic acids.
 Diphenyldihydrazinedicarboxylic acid.
 Diphenyldihydrazonocyanooacetic acid.
 Diphenyldihydrazonemalonic acid.
 Diphenyldihydrodicarbolutidinic acid.
 Diphenyldimethylpyrazolineacetic acid.
 Diphenylglyoxylic acid.
 Diphenylhexatrienecarboxylic acid.
 Diphenylitaconic acid.
 Diphenylparaconic acid.
 Diphenylpentenoic acid.
 Diphenylpyronecarboxylic acid.
 Diphenylpyrotartaric acid.
 Diphenylthioallophanic acid.
 Diphenylthiomaleuric acid.
 Diphenyltolylmethanecarboxylic acid.
 Diphtalylic acid.
 Dipiperidoquinonedicarboxylic acid.
 Dipropionyltartaric acid.
 Diisopropoxysuccinic acid.
 Dipropylarsinic acid.
s-Diisopropylsuccinic acids.
 Diisopropylbutenedicarboxylic acid.
 Dipyridyltetra-carboxylic acid.
 Disalicyl-*o*-toluic acid.
 Di-*p*-toluidido-oxalic acid.
 Ditoluoylglyceric acids.
 Ditoluoyltartaric acid.
 Ditolylacetic acid.
 Ditolyldicarboxylic acid.
 Ditolyldihydrazonocyanooacetic acid.
 Ditolylphenylmethane-*o*-carboxylic acid.
 Divaleric acid (*decoic acid*).
 Divaleryl tartaric acids.
 Dixgenic acid.
 Dodecoic acids.
 Durene-carboxylic acids.
 Ecgonine methiodide.
 Elaidic acid.
 Erucic acid.
 Ethaconic acid.

Acids. See :—

Ethanedicarboxylic acid (*isosuccinic acid*).
 Ethanesulphonic acid.
 Ethanetetracarboxylic acid.
 Ethoxybenzenesulphonic acid.
 Ethoxybenzoic acid.
 Ethoxydiphenylcarboxylic acid.
 2-Ethoxyhexahydro-*o*-toluic acid.
 Ethoxymethylbenzoic acid.
 Ethoxymethylenecyanoacetic acid.
 Ethoxymethylcyclohexanecarboxylic acid.
 Ethoxymethylpropylbenzoic acid.
 Ethoxynaphthylglyoxylic acid.
 Ethoxyphenylhydantoic acid.
 Ethoxyphenylmalamic acid.
 Ethoxypropionic acid.
 Ethoxysuccinic acid.
 Ethoxy-xylic acid.
 Ethylacetoacetic acid.
 Ethylacrylic acids (*pentenoic acid*).
 Ethylanilinoquinonedicarboxylic acid.
 Ethylcitraconic acid.
 Ethylcitrapyrotartaric acid.
 Ethyleyanoacetic acid.
 Ethylenesulphonic acid.
 Ethylenetetracarboxylic acid.
 Ethylenethiolcarbamic acid.
 α -Ethylglyceric acid.
 Ethylidenebismalonic acid (*butanetetracarboxylic acid*).
 Ethylidenediacetic acid (β -methylglutaric acid).
 Ethylidenediacetoacetic acid.
 Ethylenemalonic acid.
 Ethylenephthalimidylic acid.
 Ethylitaconic acid.
 Ethylitapyrotartaric acid.
 Ethylmalonic acid.
 Ethylmesaconic acid.
 Ethylnaphthindolinonequinonecarboxylic acid.
 Ethylnitrolic acid.
 Ethylparaconic acid.
 Ethylphosphinic acid.
 Ethylphosphinous acid.
d-Ethylsantonous acid.
 Ethylsuccinic acid.
 Ethyltrithiocarbonic acid.
 Euchroic acid.
 Everninic acid.
 Fabianaglutonannoid.
 Fencholenic acid.
 Ferulic acid.
 Formhydroxamic acid.
 Formic acid.
 Formyleyanoacetic acid.
 Fumaric acid.
 Furfuryldimethylethylenelactic acid.
 Furfurylidenediacetoacetic acid.
 Furfurylidenemalonic acid.

Acids. See :—

Furfurylmethylcyclohexanonecarboxylic acid.
 Galbanic acid.
 Gallic acid.
 Gallotannic acid.
 Gelsemic acid.
 Geranic acid.
 Gluconic acid.
 Glutaconic acid.
 Glutamic acid.
 Glutaric acid.
 Glyceric acid.
 Glycrophosphoric acid.
 Glycidic acids.
 Glycocholic acid.
 Glycollic acid.
 Glycosyldihydroxycinnamic acid.
 Glycuronic acid.
 Glyoxylic acid.
 Granatic acid.
 Graphitic acid.
 Guanidineglyoxylic acid.
 Guanidinepyruvic acid.
 Guanylic acid.
 Gyrophoric acid.
 Hæmatic acids.
 Hemellithylic acid.
 Hemimellitic acid.
 Hemipinic acids.
 Heptadecylcarbamic acid.
cyclo-Heptanecarboxylic acid.
 Heptanedicarboxylic acids.
n-Heptane-mono- and -di-sulphonic acids.
 Heptanetetracarboxylic acid (*isoamylidenebismalonic acid*).
 δ - and γ -*cyclo*-Heptatrienecarboxylic acids.
 Δ^1 -*cyclo*-Heptenecarboxylic acid.
 Heptenoic acids.
 Heptoic acid.
 Heptylidenebismalonic acid.
 Heptylsuccinic acid.
cyclo-Hexadienecarboxylic acid.
cis-Hexahydro-*o*-toluic acid.
 Hexahydro-xylic acid.
 Hexanaphthenecarboxylic acid.
 Hexanedicarboxylic acids.
n-Hexane-mono- and -di-sulphonic acids.
 Hexanetetracarboxylic acid.
 Hexanetricarboxylic acids.
 Hexenoic acid.
 Hexoic acid.
 Hexylisoacetic acid.
 Hexylitaconic acid.
 Hexylcitraconic acid.
 Hexylenedicarboxylic acid (*dimethylallylmalonic acid*).
 β -Hexylglutaric acid.
 Hexylitaconic acid.

Acids. See :—

Hexylmesaconic acid.
 Hexylparaconic acid.
 Hexylisoparaconic acid.
 Hippuric acid.
 Homocamphoronic acid.
 Homogentisic acid.
 Homophthalic acid.
 Homopiperonylic acid
 Humic acid.
 Hydratropic acid (*α -phenylpropionic acid*).
 Hydrazobenzenecarboxylic acid
 Hydrazoic acid.
 Hydrazophthalaldehydic acid.
 Hydrazopropionic acid.
 Hydrocyanic acid.
 Hydrodigitonic acid.
 Hydrofluoranic acid.
 Hydrosorbic acid (*hexenoic acid*).
 Hydrotropilidinedicarboxylic acid.
 β -Hydroxy- *α -isoamylbutyric acid* (*hydroxynonoic acid*).
 Hydroxybehenic acids.
 Hydroxybenzaminocinnamic acid.
 Hydroxybenzoic acids.
 Hydroxybutanedicarboxylic acid (*β -hydroxyethylsuccinic acid*).
 α -Hydroxybutenoic acid (*vinylglycollic acid*).
 β -Hydroxybutyric acid.
 Hydroxy-*cis*- π -camphanic acid.
 γ -Hydroxydiethylacetoacetic acid.
 β -Hydroxy-*aa*-diethylglutaconic acid.
 Hydroxydihydrocampholytic acid.
 Hydroxydimercuracetic acid.
 γ -Hydroxydimethylacetoacetic acid.
 Hydroxydimethylbenzoic acid.
 Hydroxydimethylglutaric acids.
 Hydroxydiphenylacetic acid.
 Hydroxydiphenylmethanecarboxylic acid.
 Hydroxydiphenylpyridinedicarboxylic acid.
 β -Hydroxyethanesulphonic acid.
 Hydroxyethanetricarboxylic acid.
 Hydroxyethylenesulphonic acid (*isethionic acid*).
 β -Hydroxyethylsuccinic acid.
 Hydroxyfenchonic acid.
 Hydroxygluconic acid.
 β -Hydroxyglutaric acid.
 2-Hydroxyhexahydro-*o*-toluic acid.
 2-Hydroxy- Δ^{24} -hydropyridone-3-carboxylic acid.
 Hydroxymenthyllic acid.
 α -Hydroxy- α -methyl- β -isoamylsuccinic acid.
 Hydroxymethoxyphenylglyoxylic acid.
 Hydroxymethyldibenzylcarboxylic acid.

Acids. See :—

Hydroxymethyldiphenylmethanecarboxylic acid.
 Hydroxymethylenecyanoacetic acid.
 β -Hydroxy-*aa*-methylethylglutaconic acid.
 Hydroxymethylcyclohexanecarboxylic acid.
 Hydroxymethylisopropyladipic acid.
 ω -Hydroxymethylpyromucic acid.
 Hydroxymethylsuccinic acid.
 Hydroxymethylterephthalic acid.
 Hydroxynaphthaquinonesulphonic acid.
 Hydroxynaphthoic acid.
 Hydroxynonoic acid.
 Hydroxyoctenoic acid.
 Hydroxyparaconic acid.
 Hydroxypentanedicarboxylic acid (*β -hydroxypropylsuccinic acid*).
 Hydroxyphenoxyacetic acid.
 Hydroxyphenylglyoxylic acid.
 Hydroxyphenylmethylpyridinedicarboxylic acid.
 Hydroxyphenylloxamic acid.
 Hydroxyphenylphosphoric acid.
 Hydroxyphenyl-*ac*-tetrahydronaphthalenecarboxylic acid.
 Hydroxyphthalamic acid.
 Hydroxyphthalic acid.
 Hydroxypiperidiniumacetic acid.
 Hydroxypropanedicarboxylic acid (*hydroxymethylsuccinic acid*).
 Hydroxypropylsuccinic acids.
 Hydroxypyrotartaric acid (*hydroxymethylsuccinic acid*).
 Hydroxypyruvic acid.
 Hydroxystearic acids.
 Hydroxysuccinic acid.
 Hydroxyisoterebic acid.
 Hydroxyterpenylic acid.
 β -Hydroxytetramethylglutaric acid.
 Hydroxythiodiazolesulphonic acid.
 3-Hydroxytriazole-5-carboxylic acid.
 Hydroxytrimethylgallie acid.
 Hydroxytrimethylsuccinic acid.
 Hydroxyvaleric acid.
 Hydroxy-xylic acid.
 Hydrinephosphoric acid.
 Hyponitrosoacetic acid.
 Iminophenylcarbamic acid.
 Indigotinsubsulphonic acids.
 Indonecyanoacetic acid.
 Indonemalonic acid.
 Indoxylsulphuric acid.
 Isaconitic acid.
 Isatoic acid.
 Itaconic acid.
 α -Ketobutenic acid (*propionylformic acid*).
 Ketocoumaranecarboxylic acid.
 Ketovalerolactonecarboxylic acid

Acids. See :—

Lactic acid.
 Lævulic acid.
 Latebraric acid.
 Lauric acid.
iso-Lauronic and ψ -Lauronic acids.
 Lecanoric acid.
 Lecasteric acid.
 Lecidic acid.
 Lepralic acid.
 Leucine.
 Lichenostearic acid.
 Lichenosterylic acid.
 Lignoceric acid.
 Malachite-greensulphonic acid.
 Maleamic acid.
 Maleic acid.
 Malic acids.
 Malonic acid.
 Maltobionic acid.
 Maltodextrinic acid.
 Mandelic acid.
 Meconic acid.
 Melanurenic acid (*ammelide*).
 Mellitic acid.
 Mesaconic acid.
 Mesitylenic acid.
 Mesitylgyloxylic acid.
 Mesityloxidoxalic acid.
 Mesoxalic acid.
 Methanedisulphonic acid.
 Methanetricarboxylic acid.
 Methanetrissulphonic acid.
 Methenylbismalon acid (*dicarboxy-glutaconic acid*).
 Methoxybenzenesulphonic acid.
p-Methoxybenzoylpropionic acid.
 Methoxycinnamic acid.
 Methoxydiphenylcarboxylic acid.
 Methoxygallic acid.
 Methoxymethylenecyanoacetic acid.
 Methoxymethylpropylbenzoic acid.
 Methoxymethylterephthalic acid.
 Methoxyphenylglyoxylic acid.
 Methoxyphenylmethylcyclohexenone-dicarboxylic acid.
 Methoxyphenylpropionic acid.
 Methoxypropionic acid.
 Methoxysuccinic acid.
 Methoxytoluenesulphonic acid.
 Methoxytoluenesulphonic acid.
 Methoxytricarballic acid.
 Methoxyxylic acid.
 Methylacetacetic acid.
 Methylacetobutyric acid.
 Methylacetylsuccinic acid.
 Methylacrylic acid.
 Methyladipic acid.
 Methylaminocrotonoethylideneacetacetic acid.
 Methylisoamylmaleic acid.
 α -Methyl- β -isoamylsuccinic acids.

Acids. See :—

Methylanilinopropionic acid.
 α -Methylanilino*iso*valeric acid.
 Methylisobutylideneacetic acid.
 Methylcinnamic acid.
 Methylcrotonic acid (*tiglic acid*).
 Methyldeoxybenzoincarboxylic acid.
 Methyl dibenzylcarboxylic acid.
 Methyl diethylbenzoic acid.
 Methyl dihydrotrimesic acid.
 Methyl dithiodiazolonesulphonic acid.
 Methyleneasparagine.
 Methylene dimalon acid (*propanetetra carboxylic acid*).
 Methylene dioxy cinnamic acid.
 Methylene dioxy phenyl propionic acid.
 Methylene malonic acid.
 Methyl ethyl acetic acid (*valeric acid*).
 Methyl ethyl acetacetic acid.
 Methyl ethyl allyl malonic acid.
 Methyl ethyl benzimidazolone carb-
 oxylic acid.
 Methyl glutaric acids.
 Methyl granatic acid.
 Methyl cyclohexanecarboxylic acid.
 Methyl cyclohexenecarboxylic acid.
 Methyl hexenoic acid.
 Methyl hexenone pyruvic acid.
 Methyl hydroresorcylic acid.
 Methyl hydroxyethyl aminoacetic acid.
 Methyl indoleacetic acid.
 Methyl indolecarboxylic acid.
 Methyl itaconic acid.
 α -Methyl lactic acid.
 Methyl malic acid.
 Methyl malonic acid (*isosuccinic acid*).
 Methyl mesaconic acid.
 α -Methyl- β -naphthacinchonic acid.
 2-Methyl-2-nonene-6-onoic acid.
 Methyl cyclopentanedione dicarboxylic
 acid.
 Methyl phenylalanine.
 Methyl propanetetracarboxylic acid.
 α -Methyl- β -propyl lactic acid.
 Methyl pyrrolidine dicarboxylic acid.
 Methyl pyrrolacetic acid.
 Methyl salicylidenediacetacetic acid.
 Methyl salicylidenemalon acid.
 Methyl stilbenecarboxylic acid.
 Methyl succinic acid.
 Methyl tartaric acid.
 Methyl terephthalic acid.
 Methyl tetrahydrotrimesic acid.
 Methyl toluidinesulphonic acid.
 Methyl tolulene hydrate carboxylic
 acid.
 Methyl triazencarboxylic acid.
 Methyl xanthic acid.
 Mucic acid.
 Mucobromic acid.
 Mucochloric acid.
 Myristic acid.

Acids. See :—

Naphthalenedisulphonic acid.
 α -Naphthaleneindigotinsulphonic acids.
 Naphthalenesulphin-sulphonic and -disulphonic acids.
 Naphthalenetrisulphonic acid.
 Naphthaquinoneacetoacetic acid.
 Naphthaquinoneaminosalicylic acid.
 Naphthaquinonecyanoacetic acid.
 Naphthaquinonedicyanoacetic acid.
 Naphthaquinoneimidesulphonic acid.
 Naphthaquinonemalonic acid.
 Naphthasultonesulphonic acid.
 Naphthenic acids.
 Naphthoic acid.
 Naphthol-sulphonic and -disulphonic acids.
 Naphthylacrylic acid.
 Naphthylaminesulphonic acid.
 Naphthylidithiocarbazine acids.
 Naphthylidithiazolonesulphonic acid.
 Naphthylpropylenecarboxylic acid.
 Naphthylsulphonobutyric acids.
 Nasturtic acid.
 Nicotinic acid.
 Nonanedicarboxylic acid (*heptylsuccinic acid*).
 Nonanedicarboxylic acid (β -*heptylglutaric acid*).
 Nonanetetracarboxylic acid (*heptylidenebismalonic acid*).
 Nonoic acid.
 Noryohimbic acid.
 α - and β -Nucleic acids.
 Nucleothymic acid.
 Octanedicarboxylic acid.
 n -Octane-mono- and -di-sulphonic acids.
 Octinoic acid.
 Octoaspartic acid.
 Octoic acid.
 Octylenedicarboxylic acid.
 Octyl- β -naphthacinchonic acid.
 Oenanthyldienebismalonic acid (*heptylidenebismalonic acid*).
 Oleic acid.
 Orcinol-di-, and tri-carboxylic acids.
 Ornithuric acid (*dibenzoylornithine*).
 Ovalbuminic acid.
 Oxalacetic acid.
 Oxalic acid.
 Oxyligotogenic acid.
 "Oxyheptic acid" (*isopropylmesaconic acid*).
 Oxyprotosulphonic acid.
 Oxyrocellic acid.
 Palmitic acid.
 Paraconic acid.
 Parapyruvic acid.
 Parellic acid.
 Parellinic acid.

Acids. See :—

Parmelialic acid.
 Pentadecylcarbamic acid.
 Pentadecyldithiocarbamic acid.
 Pentanedicarboxylic acids.
 Pentanetetracarboxylic acid.
 Pentanetricarboxylic acid.
 Pentenoic acids.
 Pentonic acid.
 Pentylenedicarboxylic acids.
 Peroxyprotoic acid.
 Pertusaric acid.
 Phenacylcinnamic acid.
 Phenacylcycanoacetic acid.
 Phenacylhydrocinnamic acid.
 Phenacyllaevulic acid (*phenyl-4 : 7-diketohexanecarboxylic acid*).
 Phenacylmethylcinnamic acid.
 Phenethylsuccinic acid.
 Phenetoilsulphinic acid.
 Phenetoilsulphonic acid.
 Phenoxycetic acid.
 Phenoxybenzene- p -sulphonic acid.
 Phenylacetamidocinnamic acid.
 Phenylacetamidophenylpropionic acid.
 Phenylacetic acid.
 Phenylacetoacetic acid.
 Phenylacetobutyric acid.
 Phenylacrylic acids.
 Phenylalanine.
 Phenylanilino-glutaric acid.
 Phenyl- p -anisidoacetic acid.
 Phenylaticonic acid.
 Phenylazochromotropic acid.
 Phenylazoglutaconic acid.
 Phenylbenzylbutyrolactoneacetic acid.
 α -Phenylbenzylisocrotonic acid.
 Phenylbenzylcrotonolactoneacetic acid.
 Phenylbenzylglutaconic acid.
 Phenylbenzylglycine.
 γ -Phenyl- β -benzylidene- α -ketobutyric acid.
 Phenylbenzylidenepyrotartaric acid.
 Phenylbenzylpropylenetricarboxylic acid.
 Phenylbenzylthioallophanic acid.
 Phenylbutanetricarboxylic acid.
 Phenylbutyric acid.
 Phenylbutyrolactoneacetic acid.
 Phenylcarbamic acid.
 Phenylcarbazinic acid.
 Phenylcarboxyglutaconic acid.
 Phenylcinnamylacrylic acid.
 Phenylcitraconic acid.
 Phenyl- p -cresylethoxyacetic acid.
 Phenylisocrotonic acid.
 Phenylidihydroisolaunonic acid.
 Phenylidihydronaphthoic acid.
 Phenyl-4 : 7-diketohexanecarboxylic acid.
 Phenyldiketocyclohexanedicarboxylic acid.

Acids. See:—

Phenyl diketophenoheptamethylenedicarboxylic acid.
 Phenyl diketopiperidinecarboxylic acid.
 Phenyl dimethylisooxazoleacetic acid.
 Phenyl dithiocarbazine acid.
 Phenyl dithiodiazolonesulphinic acid.
 Phenyl enedimethylcarbamidecarboxylic acid.
o-Phenyl enedioxydiacetic acid.
 Phenyl enediphosphoric acid.
 Phenylethoxyacetic acid.
 Phenylethylpropionic acid.
 Phenylethylsalicylic acid.
 Phenylethylthioallophanic acid.
 Phenyl glutaconic acid.
 Phenyl glutaranilic acid.
 Phenyl glutaric acid.
 Phenyl glutarocarboxylic acid.
 Phenyl glutarodiethylamidocarboxylic acid.
 Phenyl glutaropiperididocarboxylic acid.
 Phenyl glycollic acid.
 Phenyl hydrazinedicarboxylic acid.
 Phenyl hydrazinofornic acid.
 Phenyl hydrazinoacetic acid.
 Phenyl hydroresorcylic acid.
 Phenyl hydroxyipalvic acid.
 Phenyl iminophenylcarbamic acid.
 Phenyl itaconic acid.
 Phenyl lactic acid.
 Phenyl malonic acid.
 Phenyl mesaconic acid.
 Phenyl methoxyacetic acid.
 Phenyl methylaconic acid.
 Phenyl methylenepyrotartaric acid.
 Phenyl methyl ethylenelactic acid.
 Phenyl methyl *cyclo*hexenone-carboxylic and -dicarboxylic acids.
 Phenyl methyl itaconic acids.
 Phenyl methyl paraconic acid.
 Phenyl methyl propionic acid.
 Phenyl methyl pyrazolephosphinic acid.
 Phenyl methyl pyridonecarboxylic acid.
 Phenyl methyl pyronecarboxylic acid.
 Phenyl methyl pyrotartaric acid.
 Phenyl methyl salicylic acid.
 Phenyl methyl thioallophanic acid.
 Phenyl *cyclo*-pentanedionedicarboxylic acid.
 Phenyl- α' -phenylpyronecarboxylic acid.
 Phenyl phosphoric acid.
 Phenyl propanetricarboxylic acid.
 Phenyl propenylmalonic acid.
 Phenyl propiolic acid.
 Phenyl propiolohydroxamic acid.
 α -Phenyl propionic acid.
 Phenyl *isopropoxy*acetic acid.
 Phenyl propylenetricarboxylic acid.
 Phenyl *isopropyl*ethylenelactic acid.

VOL. LXXVI. ii.

Acids. See:—

Phenyl propylidenemalonic acid.
 Phenyl propyloxyacetic acid.
 Phenyl pyrazolonecarboxylic acid.
 γ -Phenyl- α -pyrone- $\alpha'\beta'$ -dicarboxylic acid.
 Phenyl quinolinecarboxylic acid.
o-Phenyl salicylic acid.
 Phenyl sarcosine.
 Phenyl semicarbazideacetoacetic acid.
 Phenyl semicarbazidecarboxylic acid.
 Phenyl stibic acid.
 Phenyl sulphone-*n*- and -*iso*-butyric acids.
 Phenyl sulphonesodioacetic acid.
 Phenyl tartaric acid.
 1-Phenyl-*ac*-tetrahydronaphthalene-3-carboxylic acid.
 Phenyl thiocarbazine acid.
 Phenyl thiohydantoic acid.
 α -Phenyl dithio-C-methylketureticarboxylic acid.
 Phenyl tolyltoluic acid.
 Phenyl trimethacetobutyric acid.
 Phenyl xyllylketoximecarboxylic acid.
 Phloroglucinoltricarboxylic acid.
 Phoronediacetic acid.
 Phthalamic acid.
 Phthalamidobenzoic acid.
 Phthalanilic acid.
 Phthalic acids.
 Phthalimidobutylmalonic acid.
 Phthalophenylamic acid.
 Phthalyl oxybenzoic acids.
 Phthalyl phenylisocrotonic acid.
 Phthalyl salicylic acid.
 Picramic acid.
 Picrotoxic acid.
 Pimelic acid.
 Piperic acid.
 Piperidinoacetic acid.
 Piperidylacetic acid.
 α -Piperidylbutyric acid.
 γ -Piperidyl dimethylacetoacetic acid.
 Piperidylmaleic acid.
 α -Piperidylpropionic acid.
 α -Piperidylisovaleric acid.
 Piperonylidenediacetoacetic acid.
 Piperonylidenemalonic acid.
 Piperonylmethyl *cyclo*hexenonedicarboxylic acid.
 Plumieridic acid.
 Polystichic acid.
 Prehnitolcarboxylic acid.
cyclo-Propanecarboxylic acid.
cyclo-Propanedicarboxylic acid.
 Propanedicarboxylic acid.
 Propanepentacarboxylic acid.
 Propanetetracarboxylic acid.
 Propanetricarboxylic acids.
 Propionic acid.
 Propionylformic acid.

63

Acids. See :—

Propionylhydroxypropionic acid.
 Propionylmalic acid.
o-Propiophenonecarboxylic acid.
n- and *iso*-Propylacetoacetic acids.
β-*iso*-Propylacetobutyric acid.
 Propylacrylic acids (*hexenoic acids*).
 Propylbenzenesulphonic acids.
 Propylbenzoic acid.
β-*iso*-Propylbutyric acid (*heptoic acid*).
 Propylcadodylic acid (*dipropylarsinic acid*).
 Propylcitraconic acids.
 Propylenedicarboxylic acid.
iso-Propylenemalononic acid.
 Propylenetetra-carboxylic acid.
 Propylenetricarboxylic acid.
iso-Propylglutaric acids.
 Propylglyceric acids.
 Propylidenedicarboxylic acid.
 Propylidenetricarboxylic acid.
 Propylitaconic acids.
 Propylmalonic acid.
 Propylmesaconic acids.
 Propylnitrolic acid.
 Propylparaconic acids.
 Propylphenylmethylcyclohexenonedicarboxylic acid.
iso-Propylphenylpivalic acid.
n- and *iso*-Propylphosphinic acids.
n- and *iso*-Propylphosphinous acids.
n- and *iso*-Propylsuccinic acids.
 Protocatechuic acid.
 Protocetraric acid.
 Pulegone, hydrosulphonic acids of.
 Pulveraric acid.
 Pyrazoledicarboxylic acid.
 Pyridazine-3-carboxylic acid.
 Pyrimidinecarboxylic acid.
 Pyrocinchonic acid.
 Pyromeconic acid.
 Pyromucic acid.
 Pyromucylacetic acid.
 Pyrotartaric acid.
 Pyruvic acid.
 Quinic acid.
 Quinoldicarboxylic acid.
 Quinolinecarboxylic acid.
 Quinonedicarboxylic acid.
 Racemic acid.
 Rhizocarpic acid.
 Rhizocarpinic acid.
 Rhizonic acid.
 Rhizonic acid.
 Ricinoleic acid.
 Roccellic acid.
 Rosanilinesulphonic acid.
 Saccharic acid.
iso-Saccharinic acid.
 Salazinic acid.
 Salicylic acid.
 Salicyl-O-phosphinic acid.

Acids. See :—

Salol-O-phosphinic acid.
 Santalylphthalic acid.
 Santonic acid.
 Santonous acids.
 Scatoleacetic acid.
 Sebacic acid.
 Semiorthoxalic acid.
 Semiphenylhydrazonoxalic acid.
 Semi-*p*-tolylimino-oxalic acid.
 Sodiophenylacetoacetic acid.
 Stearic acid.
 Stereocaulic acid.
 Strychnic acid.
 Suberic acid.
 Succinamic acid.
 Succinilic acid.
 Succinic acids.
 Succinobenzylamic acid.
 Sulphacetic acid.
o-Sulphamidobenzoic acid.
 Sulphanilic acid.
 Sulphobenzoic acid.
 Sulphocamphylic acid.
 Sulphocarbanilic acid.
 Sulphomethyltriazancarboxylic acid.
 Sulphonalphthalamic acid.
 Sulphophenylaminopyrazolonecarboxylic acid.
 Tannic acid.
 Tartaric acid.
 Tartraziogenic acid.
 Taurocholic acid.
 Tartaric acid.
 Teraconic acid.
 Terebic acids.
iso-Terebilenic acid.
 Terephthalic acid.
 Terpenylic acid.
 Tetracetylmucic acid.
 Tetraspartic acid.
 Tetrazodiphenyldicarboxylic acid.
 Tetrahydrodicampherylic acid.
 Tetrahydroisolauroic acid.
 Δ²-Tetrahydro-*o*-toluic acid.
 Tetrahydrouvic acid.
 Tetrahydroxylic acid.
 Tetramethyl δ aminodiphenylmethanedimethylaminohydroxyphenoxazonecarboxylic acid.
 Tetramethylenecarboxylic acid (*cyclobutanecarboxylic acid*).
 Tetramethylenedicarboxylic acid (*cyclobutanedicarboxylic acid*).
 Tetramethylpyrrolidine- β -carboxylic acid.
 Tetric acid.
 Thamnic acid.
 Thiazylisobutyric acid.
 Thioallophanic acid.
 Thiocarbonylphenylcarbazinic acid.
 Thiodiazoledisulphonic acid.

Acids. See :—

Thioglycollic acid.
 Thiophanic acid.
 Thiophaninic acid.
 Thymolglycuronic acid.
 Thymolsulphonic acids.
 Tiglic acid.
 Toluenesulphonacetic acid.
 Toluenesulphoneacetoacetic acid.
 Toluenesulphonomalonic acid.
 Toluic acid.
p-Toluidido-oxalic acid.
 Toluidinesulphonic acids.
 Toluidinoacetic acid.
 Toluylmalic acid.
 Toluyltartaric acid.
 Tolylacetic acid.
 Tolylaminoacetic acid.
 Toly carbamic acid.
 Tolyldithiocarbazinic acid.
p-Tolyldithiodiazolonesulphonic acid.
 Tolyglyoxylic acid.
 Tolyhydroxynaphthazinedisulphonic acid.
 Tolyimidotolyl carbamic acid.
 Tolylnaphthindolinonequinonecarb-
 oxylic toluidide.
p-Tolyloxybutyric acid.
 Tolyphosphinic acid.
 Tolyphosphinous acid.
 Toly succinic acid.
 Toly sulphonebutyric acids.
 Triacetyl*di*amidonaphtholsulphonic
 acid.
 Triazolecarboxylic acid.
 2 : 4 : 6-Triethylbenzoic acid.
 Triglycolamic acid.
 Trihydroxyglutaric acid.
 Trimellitic acid.
 Trimercuracetic acid.
 Trimesic acid.
 Trimethoxybenzoylbenzoic acid.
 Trimethoxydiphenylmethanecarb-
 oxylic acid.
 Trimethoxy- α -methylcinnamic acid.
 Trimethylacetic acid.
 Trimethylacetylsuccinic acid.
 Trimethylenecarboxylic acid (cyclo-
propanecarboxylic acid).
 Trimethylenedicarboxylic acid (cyclo-
propanedicarboxylic acid).
 Trimethylgallic acid.
 $\alpha\beta\beta$ -Trimethylglutaranilic acid.
 $\alpha\beta\beta$ -Trimethylglutaric acid.
 Trimethylphosphortolubetainecarb-
 oxylic acid.
 Trimethylpyruvic acid.
 Trimethylsuccinic acid.
 Trimethyluric acid.
 Triphenylacetic acid.
 Triphenylglutaric acid.
 Triphenylpyrazolecarboxylic acid.

Acids. See :—

Triphenyltrimesic acid.
 Tropæolic acid.
 Tyrosine.
 Umbilicaric acid.
 Undecic acid.
 Undecylcarbamic acid.
 Uric acid.
 Usnic acid.
 Uvitic acid.
 Valeric acids.
iso-Valeryleynoacetic acid.
iso-Valerylmalic acid.
 Vanillic acid.
 Vanilloylcarboxylic acid.
 Veratric acid.
 Vinylacetic acid.
 Vinylglycollic acid.
 Violuric acid (isonitrosobarbituric
 acid).
 Vulpic acid.
 Xylenesulphonic acid.
p-Xylic acid.
 Xylidinesulphonic acids.
 Xyllylcarboxylic acid.
 Xylglyoxylic acids.
 Xylic acid.
 Yohimbic acid.
 Zeoric acid.
Aconic acid, reduction of, and its consti-
 tution (REITTER), A., i, 115.
Aconine, physiological action of (CASH
 and DUNSTAN), A., ii, 42.
Aconitic acid, formation of, from ethylic
dibromacetylsuccinate (CONRAD), A.,
 i, 481 ; (SEMENOFF), A., i, 792.
 and sodium salt, action of phosphorus
 trisulphide on (HANNA and SMITH),
 A., i, 577.
 triethylic salt, formation of (HANNA
 and SMITH), A., i, 577.
 tautomeric forms of (GUTHZEIT), A.,
 i, 115.
iso-**Aconitic acid** (ω_2 - Δ - ω_1 -*propenetricarb-
 oxylic acid*), triethylic salt, and its
 sodium, ethyl, and benzyl derivatives ;
 also its hydrolysis and reduction, and
 the action of aniline, paratoluidine,
 ethylamine, and ammonia on it
 (GUTHZEIT and LASKA), A., i, 260.
Aconitine, *hepta*- and *tri*-iodides (PRES-
 COTT), A., i, 90.
 physiological action of (CASH and
 DUNSTAN), A., ii, 42.
Acraldehyde (*acrolein*), preparation of
 (WOHL and NEUBERG), A.,
 i, 565.
dibromide. See Propaldehyde, *di*-
bromo-.
Acrylactic acid. See Tetric acid.
Address, congratulatory, to Prof. Sir G. C.
 Stokes, P., 1899, 145.

Address, Presidential (DEWAR), T., 1167 ;
P., 1899, 77.

Adipic Acid, formation of, from Russian petroleum (ASCHAN), A., i, 672.

formation of, from hydrolysis of ethylic $\alpha\delta$ -dicyanovaleate (CARPENTER and PERKIN), T., 929.

formation of, in the oxidation of fats, and its separation (BOUVEAULT), A., i, 480.

Adonitol, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.

Adsorption, employment of, in analytical separations (GOPPELSROEDER), A., ii, 572.

Ægirite from Roumania (MRAZEC), A., ii, 768.

Ælosomin, properties of (GRIFFITHS), A., ii, 115.

"**Æschynite**" from Hitterø, Norway (PRIOR), A., ii, 433.

Æsculetin, synthesis of (GATTERMANN and KÖBNER), A., i, 364.

Æsculin, action of moulds on (PURIEWITSCH), A., ii, 683.

AFFINITY, CHEMICAL :—

Association of liquids, and optical activity (TSCHUGÆFF), A., ii, 3.

of solvents, and osmotic pressure (REYCHLER), A., ii, 357.

of formic, acetic, or butyric acids in aqueous solution (HÜFNER), A., ii, 9.

Association, molecular, and rotatory power of optically active liquids (POPE and PEACHEY), T., 1112 ;
P., 1899, 201.

of water (VAUBEL), A., ii, 727.

Affinity constants of acids in methyl alcoholic, or aqueous solution (MINOZZI), A., ii, 643.

of diazonium hydroxide (DAVIDSON and HANTZSCH), A., ii, 7.

of methylic hydroxymethylenecyanacetate (BOLLEMONT), A., i, 791.

of *l*-phenylmethoxyacetic acid (MCKENZIE), T., 767.

of *l*- and *r*-trihydroxyglutaric acid (RUFF), A., i, 324.

Dilution law, for dissociated compounds (BARMWATER), A., ii, 274.

validity of (VAN LAAR), A., ii, 11.

Chemical equilibrium in voltaic cells, application of phase rule to (BANCROFT), A., ii, 394.

variation of, with temperature (BODENSTEIN), A., ii, 637.

between ferric sulphate, ferrous dithionate, and sulphur dioxide (ANTONY and MANASSE), A., ii, 753.

AFFINITY, CHEMICAL :—

Chemical equilibrium between hydrocyanic acid and other acids, with potash or soda (BERTHELOT), A., ii, 737.

between hydrogen, oxygen, and water, and between oxygen and carbon monoxide (HÉLIER), A., ii, 85.

between hydrogen and the oxides of carbon (BERTHELOT), A., ii, 286.

false, of hydrogen sulphide (DUHEM), A., ii, 739.

in formation or decomposition of hydrogen selenide (BODENSTEIN), A., ii, 639.

between manganous hydroxide and ammonium salts (HERZ), A., ii, 752.

between mercury, mercurous and mercuric iodides (FRANÇOIS), A., ii, 751.

in precipitated silver chloride and bromide (KÜSTER), A., ii, 206.

between silver nitrate, silver amalgam, and mercurous nitrate ; and between mercury, mercurous and mercuric nitrates (OGG), A., ii, 14.

between silver potassium cyanide, hydrogen sulphide, and hydrogen cyanide (BERTHELOT), A., ii, 422.

Hydrolysis of amides and ethereal salts by alkalis, influence of formation of salts on (FISCHER), A., i, 262.

Partition of chlorine between carbon tetrachloride and water (JAKOWKIN), A., ii, 736.

Velocity of action of sodium methoxide or ethoxide on dinitrobenzenes, and on methylic iodide (STEGE), A., i, 745.

Velocity of conversion of diazoamino into aminoazo-compounds (GOLD-SCHMIDT and SALCHER), A., ii, 551.

Velocity of decomposition of carbon monoxide in presence of metallic oxides, or of carbon (BOUDOUARD), A., ii, 595, 596.

of chloro-, bromo-, or iodo-benzene by sodium amyloxide or ethoxide (LÖWENHERZ), A., ii, 639.

of glycerophosphoric acid (CAVALIER and POUGET), A., i, 660.

Velocity of diazotisation (HANTZSCH and SCHÜMANN), A., ii, 549.

Velocity of explosion of gases (CHAPMAN), A., ii, 591.

of pure acetylene (BERTHELOT and LE CHATELIER), A., ii, 734.

AFFINITY, CHEMICAL :—

Velocity of formation of methylic, ethylic, and methylic ethylic ethers, influence of water on (DE BRUYN and STEGER), A., i, 849.

and decomposition of hydrogen iodide and selenide, and of formation of hydrogen sulphide (BODENSTEIN), A., ii, 638, 639.

and of hydrolysis of ethereal salts (KISTIAKOWSKY), A., ii, 13.

and hydrolysis of ethereal salts of substituted acetic acids (SUDBOROUGH and LLOYD), T., 467 ; P., 1899, 3.

Velocity of hydrolysis of alkyl phosphates (CAVALIER), A., ii, 13, 14. of diazonium hydroxide, and of *syn*-diazotates (DAVIDSON and HANTZSCH), A., ii, 7.

of methylic acetate by diphenyliodonium hydroxide (SULLIVAN), A., ii, 398.

Velocity of inversion of cane-sugar, and osmotic pressure (ARRHENIUS), A., ii, 359.

Velocity of isodynamic change of ethylic mesityloxidoxalate (BRÜHL), A., ii, 735.

Velocity of non-explosive combination of hydrogen and oxygen (BODENSTEIN), A., ii, 733.

Velocity of oxidation of formaldehyde by hydrogen peroxide (KASTLE and LOEVENHART), A., i, 565.

Velocity of reaction between alcohols and their benzenesulphonates (SAGREBIN), A., ii, 735.

of ethylic bromide with triethylamine (HEMPINNE and BEKAERT), A., ii, 359.

in bimolecular reactions (WADELL), A., ii, 402.

limited (MULLER), A., ii, 358.

Agonidin, probable identity of plumieride with (FRANCHIMONT), A., i, 934.

AGRICULTURAL CHEMISTRY—

ANIMALS, DAIRY PRODUCTS, AND FEEDING EXPERIMENTS :—

Animals, presence of manganese in (PICHARD), A., ii, 40.

Cattle, feeding experiments on (AITKEN and SCHULZ), A., ii, 448 ; (DICKSON and MALPEAUX), A., ii, 509 ; (SCHULLE), A., ii, 609 ; (BAUMERT and FALKE), A., ii, 689 ; (FALLOT), A., ii, 797.

Horse, molasses as food for (DICKSON and MALPEAUX), A., ii, 509. temperature of the (WOODHEAD), A., ii, 309.

AGRICULTURAL CHEMISTRY : ANIMALS :

Sheep, feeding experiments on (AITKEN), A., ii, 448 ; BRÉTIGNIÈRE and DUPONT), A., ii, 608.

influence of food on production of tallow in (AITKEN), A., ii, 448.

influence of nitrogenous foods on wool formation in (AITKEN), A., ii, 448.

DAIRY PRODUCTS :—

Butter, effect of oil-foods on (BAUMERT and FALKE), A., ii, 689.

rancidity of (AMTHOR), A., ii, 259 ; (SCALA), A., i, 478.

methods of analysis. See main index.

Cheese, action of calcium salts in manufacture of (VIETH), A., ii, 570.

Cream, fresh and ripened, composition of, estimation of proteids in (LADD), A., ii, 178.

methods of analysis. See main index.

Milk, composition of (RICHMOND), A., ii, 707.

freezing point of (WINTER), A., ii, 232.

influence of calcium salts on the curdling of (VIETH), A., ii, 570.

presence of a new proteid in (WRÓBLEWSKI), A., ii, 232.

production, effect of sour hay on (KNIERIEM), A., ii, 795.

relation of composition of, to growth of progeny (ABDERHALDEN), A., ii, 232, 568.

cow's and goat's, conversion of, into laben (GEORGIADÈS), A., i, 835.

digestion of the sugar of, in the small intestine (WEINLAND), A., ii, 604.

methods of analysis. See main index.

Laben, composition of (GEORGIADÈS), A., i, 835.

FEEDING EXPERIMENTS :—

Barley, cotton cake linseed cake, or meal, or maize, as food for sheep and cattle (AITKEN), A., ii, 448.

Maize cake, as food for cows (SCHULLE), A., ii, 448, 609.

Mangel wurzels, as food for cattle, and their composition (BRÉTIGNIÈRE and DUPONT), A., ii, 608.

Molasses, as food for horses and cattle (DICKSON and MALPEAUX), A., ii, 509.

Oils, as food for cows, and their influence on butter (BAUMERT and FALKE), A., ii, 689.

Rape cake, adulteration in (JÖRGENSEN), A., ii, 46.

AGRICULTURAL CHEMISTRY :—

PLANTS.

PLANT COMPOSITION AND METABOLISM :—

- Plants**, presence of simple acids and alcohols in (LIEBEN), A., ii, 45.
 alcohol in (MAZÉ), A., ii, 606;
 (BERTHELOT), A., ii, 685; (DE-
 VAUX), A., ii, 789.
 alkaloids in (BARTH), A., ii, 46.
 barium in (HORNBERGER), A.,
 ii, 506.
 function of calcium salts in, and
 action of strontium and mag-
 nesium compounds (LOEW), A.,
 ii, 789.
 metabolism of calcium oxalate in
 (KRAUS), A., ii, 685.
 carbohydrates in (ZANOTTI), A.,
 i, 851.
 assimilation of (MAZÉ), A., ii, 321.
 conversion of, into alcohol (MAZÉ),
 A., ii, 606.
 influence of, on formation of pro-
 teids (SCHULZE), A., ii, 322.
 production of humus from (SNY-
 DER), A., ii, 48.
 chlorine, phosphorus and sulphur in
 (BERTHELOT), A., ii, 323.
 assimilation of chlorides by (PICH-
 ARD), A., ii, 788.
 occurrence of metallic copper in
 (FRANKFORTER), A., ii, 323.
 influence of anæsthetics on chloro-
 phyll-formation in (TÉODORESCO
 and COUPIN), A., ii, 239.
 dextrin and starch as reserve mate-
 rials in (DU SABLON), A., ii, 444.
 dwarf, production of, by variations
 of temperature (BONNIER), A.,
 ii, 686.
 antiseptic action of ethereal oils in
 (BOKORNY), A., ii, 786.
 selective absorption of elements by
 (DEMOUSSY), A., ii, 238.
 hydrocyanic acid in, and its relation
 to proteid formation (HÉBERT),
 A., ii, 377.
 manganese in (PICHARD), A., ii, 40.
 assimilation of organic nitrogen by
 (LYEBYEDYEV), A., ii, 689.
 nitrogen assimilation of, by, during
 germination (MAZÉ), A., ii, 237.
 influence of light on nitrogen as-
 similation by (LAURENT, MAR-
 CHAL and CARPIAUX), A.,
 ii, 173.
 elaboration of nitrogen compounds
 by (MAZÉ), A., ii, 321.
 assimilation of nitrates in, without
 light (SUZUKI), A., ii, 323.

AGRICULTURAL CHEMISTRY: PLANTS :—

Plants, distribution of α -, β -, and
 γ -oxydase in (GRÜSS), A.,
 i, 314.

absorption of potassium salts by
 (DEMOUSSY), A., ii, 172.

metabolism, formation of proteids in
 (HÉBERT), A., ii, 47.

decomposition of proteids in
 (SCHULZE), A., ii, 240.

influence of carbohydrates on de-
 composition and regeneration of
 proteids in (SCHULZE), A., ii, 322;
 (SUZUKI), A., ii, 323.

proteid decomposition, asparagine
 formation and respiration in, rela-
 tion between (PRIANISCHNIKOFF),
 A., ii, 787.

assimilation of sodium and potassium
 compounds by (SCHRÖDER), A.,
 ii, 789.

digestion of starch in (DU SABLON)
 A., ii, 239.

starch formation in, and relation to
 diastase (MEYER), A., ii, 321.

function and distribution of sucrose
 and other sugars in (SCHULZE), A.,
 ii, 570.

tannin formation in (MER), A.,
 ii, 607.

PLANTS :—

Ash, the mineral bases in (TANRET),
 A., ii, 170.

Bud formation, loss of calcium oxalate
 during (KRAUS), A., ii, 685.

Chlorophyll, extraction from lucerne
 (*Medicago sativa*), (ÉTARD), A.,
 i, 381.

formation of, without light (ÉTARD
 and BOUILHAC), A., ii, 46.

influence of anæsthetics on formation
 of, in plants (TÉODORESCO and
 COUPIN), A., ii, 239.

chemistry of (MARCHLEWSKI), A.,
 i, 381, 822.

function of (ÉTARD), A., ii, 792.

relation of, to nitrogen nutrition
 (LAURENT, MARCHAL, and CAR-
 PIAUX), A., ii, 173.

assimilation of, in relation to colour
 of leaves (GRIFFON), A., ii, 320.

presence of, in the livers of inverte-
 brates (DASTRE and FLORESCO),
 A., ii, 374.

compounds (KOHL), A., i, 228.

derivatives, absorption spectra of,
 (SCHUNCK), A., ii, 540.

Leaves, growth and constituents of, at
 various periods (BERTHELOT and
 ANDRÉ), A., ii, 319.

presence of simple acids and alcohols
 in (LIEBEN), A., ii, 45.

AGRICULTURAL CHEMISTRY: PLANTS:—

- Leaves**, formation of aromatic substances by alcoholic fermentation in presence of (JACQUEMIN), A., ii, 377.
- chlorophyll-assimilation by, in relation to colour (GRIFFON), A., ii, 320.
- chlorophyll in, in relation to assimilation of nitrogen (LAURENT, MARCHAL, and CARPIAUX), A., ii, 173.
- Protoplasm**, living and dead. The albumin of (LOEW), A., ii, 606.
- Root nodules**, of pea; amount of nitric nitrogen formed by (BEESON), A., ii, 175.
- Roots**, constituents and growth of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.
- absorption of carbohydrates, and carbon-assimilation by (LAURENT), A., ii, 173.
- excretions (KOHN), A., ii, 791.
- decomposition of felspars, by (SESTINI), A., ii, 798.
- Cell sap**, solubility of calcium oxalate (KRAUS), A., ii, 685.
- Seedlings**, growth of, in various gases and vapours (SANDSTEN), A., ii, 320.
- action of acetic acid on (FASSBENDER and GREVILLIUS), A., ii, 794.
- action of sodium perchlorate in Chili saltpetre on (ZAHARIA), A., ii, 799.
- Seeds**, growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.
- germinating, action of ether on (TOWNSEND), A., ii, 684.
- oily, changes in composition of, during germination (MAQUENNE), A., ii, 171.
- growth of, in various gases and vapours (SANDSTEN), A., ii, 320.
- presence of manganese in (PICHARD), A., ii, 40.
- distribution and function of sugars in (SCHULZE), A., ii, 570.
- action of acetic acid on (FASSBENDER and GREVILLIUS), A., ii, 794.
- importance of changing (DEHÉRAIN), A., ii, 687.
- Stems**, growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.
- Plant tissue**, estimation of carbonic dioxide in (BERTHELOT), A., ii, 685.
- Respiration** and assimilation in, under alpine conditions (BONNIER), A., ii, 686; (PALLADIN), A., ii, 686.

AGRICULTURAL CHEMISTRY: PLANTS:—

- Respiration** of yeast cells, influence of oxygen on (BUCHNER and RAPP), A., ii, 169.
- Respiratory coefficient** in plants (BERTHELOT), A., ii, 685.
- under increased respiration (DEVIAUX), A., ii, 789.
- Plant growth**, nature and amount of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.
- influence of light on (PAGNOUL), A., ii, 788.
- without light (MAZÉ), A., ii, 321.
- influence of temperature and moisture on (BONNIER), A., ii, 686.
- in various gases and vapours (SANDSTEN), A., ii, 320.
- influence of sucrose on (GOLDING), A., ii, 689.
- Plant nutrition**, function of calcium oxalate in (KRAUS), A., ii, 685.
- root absorption of carbohydrates as a source of carbon in (LAURENT), A., ii, 173.
- nitrogen absorption in (RICHTER), A., ii, 237.
- assimilation of nitrates and of ammonia in (LAURENT, MARCHAL, and CARPIAUX), A., ii, 173.
- the relative value of nitrates and ammonia salts, and absorption of ammonia in (MAZÉ), A., ii, 237.
- absorption of potassium salts in (DEMOUSSY), A., ii, 172.
- Plants**, damage caused by acetic acid vapour, and solution to (FASSBENDER and GREVILLIUS), A., ii, 794.
- damage done to, by copper salts (COUPIN), A., ii, 118.
- toxic action of arsenic on, and its introduction in manures (STOKLASA), A., ii, 323.
- toxic action of perchlorate, in nitrates on (PAGNOUL), A., ii, 243; (KRÜGER and BERJU), A., ii, 325.
- toxic action of iodine compounds on (DEMOUSSY), A., ii, 172.
- Plant-germination**, assimilation of oxidised and amidic nitrogen in (MAZÉ), A., ii, 237.
- metabolism in oily seeds during (MAQUENNE), A., ii, 171.
- metabolism in peas, lupins, and vetches during (PRIANISCHNIKOFF), A., ii, 787.
- influence of acetic acid on (FASSBENDER and GREVILLIUS), A., ii, 794.
- action of ether on (TOWNSEND), A., ii, 684.

AGRICULTURAL CHEMISTRY: PLANTS:—

Forest fires, loss of nitrogen in soil by (SNYDER), A., ii, 48.

PLANTS:—

Arachis seeds, metabolism of reserve material in, during germination (MAQUENNE), A., ii, 171.

Artichokes, action of *Bacillus coli* on (ROUX), A., ii, 444.

Barley, manurial experiments with (MALPEAUX), A., ii, 242; (PRIANISCHNIKOFF and KOUZNEZOFF), A., ii, 513; (MAERCKER), A., ii, 691; (LYEBYEDYEV), A., ii, 689; (GUFFROY), A., ii, 795; (ZAHARIA), A., ii, 799.

the carbohydrates of (TOLLENS), A., ii, 174.

assimilation of nitrates in the dark by (SUZUKI), A., ii, 323.

germinated, presence of pectinase in (BOURQUELOT), A., i, 652.

phosphoric acid in (MATTHEWS and WOOLCOTT), A., ii, 174.

brewery, the potash requirements of, and its application (RÉMY), A., ii, 795.

Beans, action of double superphosphates on (WOHLTMANN), A., ii, 511.

germinating, assimilation of nitrogen by (MAZÉ), A., ii, 237.

Beetroot (sugar), manurial experiments with (SCHNEIDWIND), A., ii, 49; (WOHLTMANN), A., ii, 511; (MAERCKER), A., ii, 691.

furfurals in (STOKLASA), A., ii, 792.

influence of sodium perchlorate on (ZAHARIA), A., ii, 799.

seeds, action of formaldehyde on (JODIN), A., ii, 44.

cause of darkening of (GONNERMANN), A., ii, 790.

seed and leaves, presence of an enzyme in, and absence of saccharose and lævulose in (GONNERMANN), A., ii, 791.

amounts of lecithin and distribution of phosphoric acid in (STOKLASA), A., ii, 45.

juices, presence of peptones in (RÜMLER), A., ii, 507.

Boletus edulis, yield of chitin from (TANRET), A., ii, 171.

amount of pentosans in (MENOZZI), A., ii, 683.

Brassica juncea, *B. glauca*, *B. napus*, *B. rapa*, and *B. dichotoma* seeds, composition of oil of (JÖRGENSEN), A., ii, 46.

AGRICULTURAL CHEMISTRY: PLANTS:—

Broad bean, colouring principles of the, and other constituents (BOURQUELOT and HÉRISSEY), A., ii, 325.

Buckwheat, nitrogenous nutrition of (RICHTER), A., ii, 237.

selective absorption by (DEMOUSSY), A., ii, 238.

etiolated, action of anæsthetics on (TÉODORESCO and COUPIN), A., ii, 239.

Carnations, growth of, in artificial soil with various manures (JENKINS and BRITTON), A., ii, 511.

Cereals, action of various manures on (WOHLTMANN), A., ii, 511.

action of basic slag on (GUFFROY), A., ii, 795.

action of sodium perchlorate in Chili saltpetre on (ZAHARIA), A., ii, 799.

Chaff, nitrogen contents of (HOLDEFLEISS), A., ii, 47.

Clover, grey, nitragin experiments with (FEILITZEN), A., ii, 684.

influence of light on (PAGNOUL), A., ii, 788.

white, red, and bastard, the digestive value of (KINERIEH), A., ii, 795.

Colza, selective absorption by (DEMOUSSY), A., ii, 238.

Conifers, variation in amount of lignin in wood of (CIESLAR), A., ii, 447.

Conifer seeds, distribution and function of sugars in (SCHULZE), A., ii, 570.

Copper-beech, occurrence of barium in ash of (HORNBERGER), A., ii, 506.

Cotton flowers, the colouring matter of (PERKIN), T., 825; P., 1899, 161.

seed, presence of gossypol in (MARCHLEWSKI), A., i, 821.

Cruciferae seeds, presence and absence of volatile mustard oils in (JÖRGENSEN), A., ii, 797.

Cucumbers, growth of, in artificial soils with various manures (JENKINS and BRITTON), A., ii, 511.

Currant-bushes, sterility of (AITKEN), A., ii, 447.

Fescue, action of potassium perchlorate in potassium nitrate on (PAGNOUL), A., ii, 243.

Figs, Barbary, constituents of, and yield of alcohol from (ROLANTS), A., ii, 784.

Flowers, growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.

Fungi, chemical constituents of, and presence of proteids in (WINTERSTEIN), A., ii, 240.

AGRICULTURAL CHEMISTRY : PLANTS :—

- Fungi**, respiratory quotient of, in nutrient media (PURIEWITSCH), A., ii, 785.
 presence of a proteolytic ferment in (BOURQUELOT and HÉRISSEY), A., i, 313.
 iodine in (GAUTIER), A., ii, 650.
 preparation of fungin, fungose, and chitin from (TANRET), A., ii, 171.
 composition of mycelium of (MAR-SCHALL), A., ii, 44.
 edible, amount of pentosans in (MENOZZI), A., ii, 683.
 toxic influence of various ions on (CLARK), A., ii, 627.
 toxic action of ethereal oils on (BOKORNY), A., ii, 318, 786 ; (SALKOWSKI), A., ii, 786.
Gooseberry, pectin of (BOURQUELOT), A., i, 652 ; (BOURQUELOT and HÉRISSEY), A., i, 653.
Grass, couch, the digestive value of (KNIERIEM), A., ii, 795.
Haricot beans, French, composition and nutritive value of (BALLAND), A., ii, 174.
Hay, amount of phosphoric acid in (WAGNER), A., ii, 690.
 the percentage digestion of, by rabbits, and effect of some hay on milk production (VON KNIERIEM), A., ii, 795.
Leguminosae, experiments with nitrigen on (AITKEN), A., ii, 512.
Lentils, selective absorption by (DEMOUSSY), A., ii, 238.
Linseed, composition of (HERZOG), A., ii, 796.
Lucerne (*Medicago sativa*), growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 320.
 extraction of chlorophylls from (ÉTARD), A., i, 381.
Lupin, white, etiolated, action of anæsthetics on (TÉODORESCO and COUPIN), A., ii, 239.
 growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.
Maize, absorption of phosphoric acid in soil-water by (SCHLÆSING, jun.), A., ii, 243.
 kernels, selection of, for seed, and relation of external characters to chemical composition (HOPKINS), A., ii, 687.
 residues, digestibility of (SCHULZE), A., ii, 509.

AGRICULTURAL CHEMISTRY: PLANTS :—

- Ma'ze**, seedlings, assimilation of carbon by roots of (LAURENT), A., ii, 173.
 seeds, assimilation of nitrogen by germinating (MAZÉ), A., ii, 237.
 selective absorption by (DEMOUSSY), A., ii, 238.
 stalks, the sugars of (ISTRATI and ETTINGER), A., ii, 506, 507.
Maize-cake, composition and feeding value of (SCHULLE), A., ii, 609.
Malt, the carbohydrates of (TOLLENS), A., ii, 174.
 the nitrogen compounds in, and their separation (LASZCZYNSKI), A., ii, 793.
 the sugars of (LING), A., ii, 187.
 and barley, relation between acidity and soluble phosphates or total phosphoric acid ; calcium and magnesium in ; presence of organic acids in (MATTHEWS and WOOLCOTT), A., ii, 174.
Mangel-wurzel, manurial experiments at Rothamsted with (WARINGTON), A., ii, 800.
 manurial experiments with (DEHÉRAIN), A., ii, 687.
 composition and feeding value of (BRÉTIGNIÈRE and DUPONT), A., ii, 608.
Millet, composition and feeding value of varieties of (BALLAND), A., ii, 119.
 hay, presence of an active principle in (LADD), A., ii, 240.
Monocotyledons, the metabolism of carbohydrates and relative value of various sugars for starch-formation in (PARKIN), A., ii, 790.
Mulberry leaves, amount of cellulose and pentosans in (MENOZZI), A., ii, 683.
Mustard, manurial value of various phosphates for (JOFFRE), A., ii, 610.
 nitrogenous nutrition of (RICHTER), A., ii, 237.
 methods of analysis. See main index.
Nut-shells, composition of (ZANOTTI), A., i, 851.
Oak, conversion of sapwood into wood in (MER), A., ii, 607.
 occurrence of metallic copper in wood of (FRANKFORTER), A., ii, 323.
Oak-barks, amounts of tannin in, and influence of age thereon (BOREL and BLONAY), A., ii, 241.

AGRICULTURAL CHEMISTRY: PLANTS:—

Oats, manurial experiments with (SCHNEIDEWIND), A., ii, 49; (RICHTER), A., ii, 237; (MALPEAUX), A., ii, 242; (DEHÉRAIN), A., ii, 243; (KLOPPER), A., ii, 512; (LIEBSCHER and EDLER), A., ii, 691; (KARPINSKI), A., ii, 787; (SCHRÖDER), A., ii, 789; (ZAHARIA), A., ii, 799.

influence of water supply and manure on growth of (TUCKER and SEELHORST), A., ii, 508.

influence of pot or field growth on assimilation in (KARPINSKI), A., ii, 787.

Peas, fixation of nitrogen by (RICHTER), A., ii, 237.

selective absorption by (DEMOUSSY), A., ii, 238.

germination of (JODIN), A., ii, 44.

formation of alcohol in (MAZÉ), A., ii, 606.

production of nitric nitrogen by, and influence on associated crops (BEESON), A., ii, 175.

grey, nitragin experiments with (FEILITZEN), A., ii, 684.

Phaseolus multiflorus, assimilation of nitrates in the dark by (SUZUKI), A., ii, 323.

Potatoes, manurial experiments with (DEHÉRAIN), A., ii, 687.

assimilation of nitrates in the dark by (SUZUKI), A., ii, 323.

amount of solanine in (BAUER), A., ii, 392.

poisonous action of calcium chloride on (WHEELER, TUCKER, and HARTWELL), A., ii, 51.

Quercus robur, and *Q. pedunculata*, formation of duramen in, and the tannin starch in (MER), A., ii, 607.

Quince, pectin of (BOURQUELOT), A., i, 652; (JAVILLIER), A., i, 822.

Radishes, growth of, in artificial soil with various manures (JENKINS and BRITTON), A., ii, 511.

Rape, manurial experiments with (WOHLTMANN), A., ii, 511; (GRASHOF), A., ii, 797.

Indian, influence of, in rape-cake (JØRGENSEN), A., ii, 46.

Rape-cakes, volatile mustard oil in, and valuation of, for cattle food (JØRGENSEN), A., ii, 797.

Robinia, growth and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 320.

Rosaceae, absence of hydrocyanic acid from cultivated (HÉBERT), A., 377.

AGRICULTURAL CHEMISTRY: PLANTS:—

Roses, the pectin of (BOURQUELOT), A., i, 652.

Rye, selective absorption by (DEMOUSSY), A., ii, 238.

action of perchlorate on (SJOELLEMA), A., ii, 513; (ZAHARIA), A., ii, 799.

summer, action of various phosphates on (KÜHN), A., ii, 50.

estimation of cellulose in (LEBBIN), A., ii, 67.

Silver fir and Spruce fir, amount of lignin in wood of (CIESLAR), A., ii, 447.

Straw, nitrogen contents of (HOLDEFLEISS), A., ii, 47.

production of humus from (SNYDER), A., ii, 48.

Sugar-cane, presence of glycollic acid in (SHOREY), A., ii, 507.

Tobacco, assimilation of chlorides by (PICHARD), A., ii, 788.

cigar, pipe and cigarette, amounts of nicotine in (SINNOLD), A., ii, 48.

leaves, composition of good and bad, and effect of soluble manures on (BEHRENS), A., ii, 795.

methods of analysis. See main index.

Tomatoes, growth of, in artificial soil with various manures (JENKINS and BRITTON), A., ii, 511.

Vetch, pot experiments with (DEHÉRAIN), A., ii, 610.

growth of, in the dark (MAZÉ), A., ii, 321.

etiolated, action of anæsthetics on (TEODORESCO and COUPIN), A., ii, 239.

germinating, assimilation of nitrogen by (MAZÉ), A., ii, 237.

the digestive value of (VON KNIERIEM), A., ii, 795.

Vicia fabia, action of temperature changes on growth of (PALLADIN), A., ii, 686.

Vine, action of mercurial dressings on (VIGNON and PERRAUD), A., ii, 446.

leaves, addition of extract of, to fermenting must (JACQUEMIN), A., ii, 377.

Walnut-cake, composition of, and value for feeding cows (FALLOT), A., ii, 797.

Wheat, manurial experiments with (MALPEAUX), A., ii, 242; (DEHÉRAIN), A., ii, 243; (GUFFROY), A., ii, 795.

growth, and constituents of, at various periods (BERTHELOT and ANDRÉ), A., ii, 319.

AGRICULTURAL CHEMISTRY: PLANTS:—

- Wheat**, relation of composition to quality of soil (JANUSZEWSKI), A., ii, 325.
 selective absorption by (DEMOUSSY), A., ii, 238.
 etiolated, action of anæsthetics on (TEODORESCO and COUPIN), A., ii, 239.
 toxic action of copper salts on (COUPIN), A., ii, 118.
 toxic action of chromium compounds on (COUPIN), A., ii, 242.
Yeast, assimilation of nitrogen by (STERN), T., 205; P., 1898, 183.

SOILS.

- Soils**, arable, loss of manures in (SCHLIEBS and MINSEN), A., ii, 571.
 quality and requirements of, shown by plant analysis (JANUSZEWSKI), A., ii, 325; (LIEBSCHER and EDLER), A., ii, 691.
 influence of various crops on the moisture in (MAERCKER), A., ii, 689.
 influence of water in, on plant constituents (WILMS and SEELHORST), A., ii, 609.
 effect of sea-water on (SWAVING), A., ii, 510.
 barium in (HORNBERGER), A., ii, 506.
 chlorides in (PICHARD), A., ii, 788.
 humoid substances in (SNYDER), A., ii, 48; (ANDRÉ), A., ii, 119, 120, 449; (SESTINI), A., ii, 120; (LADD), A., ii, 176.
 phosphates in (SCHLÆSING), A., ii, 119, 449; (PRIANISCHNIKOFF), A., ii, 514; (HANAMANN), A., ii, 515.
 artificial, growth of various plants in (JENKINS and BRITTON), A., ii, 511.
 calcareous, loss of nitrogen from ammoniacal manures on (GIUSTINIANI), A., ii, 692.
 crop bearing, loss of constituents of by rainfall (HANAMANN), A., ii, 515.
 cultivated (ANDRÉ), A., ii, 119, 449.
 heavy, action of manures on (WOHLTMANN), A., ii, 511; (PFEIFFER and others), A., ii, 378; (KLOPPER), A., ii, 512.
 light, action of manures on (PFEIFFER, FRANKE, LEMMERMAN and SCHILLBACH), A., ii, 378; (WAGNER), A., ii, 572.
 meadow, amount of basic slag required for (WAGNER), A., ii, 690.

AGRICULTURAL CHEMISTRY: SOILS:—

- Soils**, moorland, composition of (ANDRÉ), A., ii, 449.
 orchard, sterility of (AITKEN), A., ii, 447.
 peaty, composition of (ANDRÉ), A., ii, 449.
 forms of phosphoric acid in (NANNES), A., ii, 798.
 action of manures on (SCHLIEBS and EMMERLING; MINSEN), A., ii, 571; (FEILITZEN), A., ii, 684.
 prairie, effect of cultivation on (SNYDER), A., ii, 48.
 sandy action of poudrette on (TACKE), A., ii, 690.
 surface and sub-soil, phosphoric acid in, and its solubility (SEISSEL), A., ii, 798.
 vegetable mould, composition of (ANDRÉ), A., ii, 449.
 marly, from Asia Minor (SCHULZE), A., ii, 510.
 from Bad-Pyrmont (KREUSLER), A., ii, 799.
 from Bulgaria (SCHULZE), A., ii, 510.
 from Frauenbad (LUDWIG, HÜDMOSER, and PANZER), A., ii, 798.
 of North Dakota (LADD), A., ii, 176.
 Rothamstead (GOSS and SNYDER), A., ii, 688.
 effect of nitrates and farmyard manure on, as regards denitrification (WARINGTON), A., ii, 800.
 methods of analysis. See main index.
NITRIFICATION, NITROGEN, AND NITROGENOUS COMPOUNDS:—
Nitrification in soils (SCHLÆSING), A., ii, 175; (PFEIFFER, FRANKE, LEMMERMAN, and SCHILLBACH), A., ii, 379; (DEMOUSSY), A., ii, 443.
Nitrates, action of, on chlorides in soils (PILCHARD), A., ii, 788.
Nitrogen in soil, loss of, by forest fires (SNYDER), A., ii, 48.
 atmospheric, fixation of, by symbiotic organisms (BOUILHAC), A., ii, 238.
 nitric, amounts of, formed by nodule-bacteria on pea (BEESON), A., ii, 175.
Nitrogenous substances accompanying humic acid from soils (SESTINI), A., ii, 120.
Nitrifying organisms, biology of (DAWSON), A., ii, 785.
Micro-organisms in soils (DEHÉRAIN), A., ii, 609.

AGRICULTURAL CHEMISTRY: SOILS:—

Denitrification in soils, causes and importance of (KRÜGER and SCHNEIDEWIND), A., ii, 510.

in soils, and action of farmyard manure (KRÜGER and SCHNEIDEWIND), A., ii, 449; (PFEIFFER), A., ii, 50.

Denitrifying bacteria, classification of (AMPOLA and ULPANI), A., ii, 444.

loss of nitrogen by (WARINGTON), A., ii, 800.

WATER.

Water in soils, solvent action of, on phosphoric acid, and action of carbonic anhydride (SCHLESING), A., ii, 119.

MANURES AND MANURING EXPERIMENTS.

Manures, action of various, on formation of furfuroids in sugar-beet (STOKLASA), A., ii, 792.

production of humus from (SNYDER), A., ii, 48.

loss of, in arable land and meadows (SCHLIEBS and MINSEN), A., ii, 571.

artificial, action of, on various plants (JENKINS and BRITTON; SEBELIEN), A., ii, 511.

ammonia in, fixation by various agents (EMMERLING), A., ii, 571.

methods of analysis. See main index.

Alinite, manurial effect of, on cereals (MALPEAUX), A., ii, 242.

Ammoniacal manures, loss of nitrogen from, in calcareous soils (GIUSTINIANI), A., ii, 692.

Ammonium salts, manurial value of (KLOEPFER), A., ii, 512; (WAGNER), A., ii, 572.

phosphate, as manure for barley and oats (STEFFECK and MAERCKER), A., ii, 177.

sulphate, manurial action of (WOHLTMANN), A., ii, 511.

assimilation of, by oats, in pots and in the field (KARPINSKI), A., ii, 787.

Arsenic in manures, and its toxic action (STOKLASA), A., ii, 323.

Blood-meal as manure (PFEIFFER, FRANKE, LEMMERMANN, and SCHILLBACH), A., ii, 378.

Bone-meal as manure (KÜHN), A., ii, 50; (STEFFECK and MAERCKER), A., ii, 177; (MEISSEL and REITMAIR), A., ii, 379.

AGRICULTURAL CHEMISTRY: MANURES:—

Clover manure (green), production of humus from (SNYDER), A., ii, 48.

Dung, action of, on cereal crops (WOHLTMANN), A., ii, 511.

Farmyard manure, experiments with (PFEIFFER, FRANKE, LEMMERMANN, and SCHILLBACH), A., ii, 378.

production of humus from (SNYDER), A., ii, 48.

artificial, conservation of nitrogen in (ROGOVSKY), A., ii, 512.

action of, on potatoes and mangolds (DEHÉRAIN), A., ii, 687.

action of, on sterile orchard soil (AITKEN), A., ii, 447.

action of, on vetches (DEHÉRAIN), A., ii, 610.

Guano, experiments with new sorts of (STEFFECK and MAERCKER), A., ii, 178.

manurial action of, on barley (MAERCKER), A., ii, 691.

Norwegian fish-, manuring of barley and oats with (STEFFECK and MAERCKER), A., ii, 177.

Horn meal as manure (PFEIFFER, FRANKE, LEMMERMANN, and SCHILLBACH), A., ii, 378.

Kainite, manurial action of (WOHLTMANN), A., ii, 511; (MAERCKER), A., ii, 691.

Leather refuse as manure (STEFFECK and MAERCKER), A., ii, 178.

Lime as a manure for various crops (WOHLTMANN), A., ii, 511.

as a manure, in excessive dressing with ammonium sulphate (WHEELER, TUCKER, and HARTWELL), A., ii, 50.

Magnesia, as manure for grain crops (SCHNEIDEWIND), A., ii, 49.

Meat scrap manure, production of humus from (SNYDER), A., ii, 48.

Nitragin, experiments with (AITKEN), A., ii, 512; (FEILITZEN), A., ii, 684; (DAWSON), A., ii, 785.

Nitrates, exhaustion of world's supply of (DEHÉRAIN), A., ii, 243.

assimilation of, by oats (KARPINSKI), A., ii, 787.

various, as manure for sugar-beet and oats (SCHNEIDEWIND), A., ii, 49.

and soluble manures, action of, on tobacco (BEHRENS), A., ii, 795.

Nitrogen, organic, as manure for plants (LYEBYEDYEV), A., ii, 689; (PFEIFFER and others), A., ii, 378.

AGRICULTURAL CHEMISTRY: MANURES:—

- Nitrogenous manures**, and their relative values (KÖNIG), A., ii, 49; (STEFFECK and MAERCKER), A., ii, 177; (LYEBEDYEV), A., ii, 689.
 action of, on flowering plants (SEBELIEN), A., ii, 511.
 action of, on oats (LIEBSCHER and EDLER), A., ii, 691.
- Oil cakes**, various, manurial value of (MALPEAUX), A., ii, 378.
- Phosphates**, manurial value of, in relation to solubility (JOFFRE), A., ii, 610.
 manuring of barley and oats with (STEFFECK and MAERCKER), A., ii, 177.
 influence of, on yield of oil in rape (GRASHOF), A., ii, 797.
 mineral, value of, for various crops (PRIANISCHNIKOFF), A., ii, 514.
- Phosphoric acid**, citrate soluble, production of (KNOOP), A., ii, 801.
 retention of, by soils (HANAMANN), A., ii, 515.
 of basic slag and bone-meal, field experiments on the (MEISSL and REITMAIR), A., ii, 379.
 as double superphosphate, action of, on beans (WOHLTMANN), A., ii, 511.
 influence of, on growth of oats (TUCKER and SEELHORST), A., ii, 509.
 in soil-water, utilisation of, by plants (SCHLÖESING, jun.), A., ii, 243.
 methods of analysis. See main index.
- Potash manures**, action of, on oats (LIEBSCHER and EDLER), A., ii, 691.
- Potassium phosphate** as manure for barley and oats (STEFFECK and MAERCKER), A., ii, 177.
- Poudrette** as manure, the nitrogenous value of (TACKE), A., ii, 690.
- Slag, basic**, as manure for cereals (KÜHN), A., ii, 50; (MEISSL and REITMAIR), A., ii, 379; (GUFROY), A., ii, 795.
 amount of, required for meadow soils (WAGNER), A., ii, 690.
 action of, on ammoniacal manure (GIUSTINIANI), A., ii, 692.
 composition of insoluble portion of (PASSON), A., ii, 514.
 methods of analysis. See main index.
- Sodium nitrate** (*Chili saltpetre*), manurial action of (WOHLTMANN), A., ii, 511; (KLOEPFER), A., ii, 512; (PRIANISCHNIKOFF and KOUZNEZOFF), A., ii, 513.

AGRICULTURAL CHEMISTRY: MANURES:—

- Sodium nitrate** (*Chili saltpetre*), as a top-dressing for sugar-beet (MAERCKER), A., ii, 691.
 toxic action of perchlorate in (KRÜGER and BERJU), A., ii, 325; (SJOLLEMA), A., ii, 513; (ZAHARIA), A., ii, 799.
 methods of analysis. See main index.
- Stable Manure**, action of ferric sulphate on micro-organisms of (MÜLLER), A., ii, 506.
- Starfish**, manurial value of (FIELD), A., ii, 690.
- Stone-meal**, inutility of, as manure (STEFFECK and MAERCKER), A., ii, 177.
- Sucrose** (*cane sugar*), manurial value of, and influence on nitrogen fixation (GOLDING), A., ii, 689.
- Superphosphate**, conversion of, into tricalcium phosphate in soils (JOFFRE), A., ii, 420.
 amount of arsenic in, and its toxic action (STOKLASA), A., ii, 324.
 influence of, on summer rye (KÜHN), A., ii, 50.
 manurial action of, on vetches (DEHÉRAIN), A., ii, 610.
- Vetches**, as a manure for potatoes and mangolds (DEHÉRAIN), A., ii, 687.
- MANURING EXPERIMENTS.**
- Manuring experiments** on maize, beans, and vetches (MAZÉ), A., ii, 237.
 (nitrogenous) with peas, buckwheat, oats, and mustard (RICHTER), A., ii, 237.
- Aikinite**, from the Urals (GUILLEMAIN), A., ii, 757.
- Air.** See Atmospheric air.
- α -Alanine** (α -aminopropionic acid), heat of formation of (BERTHELOT and ANDRÉ), A., ii, 400.
d- and *l*-, and hydrochlorides, specific rotations of (FISCHER), A., ii, 888.
- Albumine**, from egg-albumen (FRÄNKEL), A., i, 396.
- Albertite**, asphalt resembling, from U.S.A. (TAFF), A., ii, 756.
- Albite** from Russia (JEREMÉEFF), A., ii, 673.
- Albumen of carob-seed**, composition and hydrolysis of (BOURQUELOT and HÉRISSEY), A., i, 839.
- Albumin**, constitution of (KOSSEL), A., i, 833.
 from blood, crystallisation of (GRUZEWSKA), A., i, 838.
 in plants, formation of and chemical character (LOEW), A., ii, 606.

- Albumin**, action of pepsin and pancreatic juice on (HARLAY), A., i, 835.
 decomposition products of (COHN), A., i, 315.
 mode of conversion of sugar into, in diabetes (MÜLLER and SEEMANN), A., i, 968.
 detection of (GNEZDA), A., ii, 715.
 detection of, in animal liquids (RIEGLER), A., ii, 264.
 detection of, in urine (STRZYZOWSKI), A., ii, 459; (GUERIN), A., ii, 716.
 detection of dextrin, gelatin, and gum in (BONNEMA), A., ii, 196.
 estimation of (DELAUNAY), A., ii, 536.
 estimation of, in blood serum (PATEIN), A., ii, 828.
 estimation of, in urine (DENIGÈS), A., ii, 828.
- Albumin, egg-** (PANORMOFF), A., ii, 655; (OSBORNE), A., i, 837.
 crystallised (HAUSMANN), A., i, 654; (PANORMOFF), A., i, 655.
 colloidal, coagulation of (LINEBARGER), A., ii, 12.
 absorption spectrum of (BLYTH), T., 1163; P., 1899, 175.
 the carbohydrate of (SEEMANN), A., i, 465; (BLUMENTHAL), A., i, 465; (BLUMENTHAL and MAYER), A., i, 465.
 iodine derivative of (KURAÉEFF), A., i, 314.
 action of pyrophosphoric acid on (WORMS), A., i, 655.
 action of yeast extract on (GERET and HAHN), A., i, 94.
 oxidation products of (BERNBET), A., i, 315.
 decomposition of, into ovalbuminic acid (ALEAHARY), A., i, 95.
 formation of a sugar from (MAYER), A., i, 787.
 preparation of albumine from (FRÄNKEL), A., 396.
 preparation of ovimucoid from (ZANNETTI), A., i, 180.
 detection of (DIETERICH), A., ii, 392.
- Albumin, serum-**, absorption spectrum of (BLYTH), T., 1163; P., 1899, 175.
 iodine derivative of (KURAÉEFF), A., i, 314.
- Albuminoid.** See Proteid.
- Albuminous gland** in *Helix pomatia*, agglutinating action of the (CAMUS), A., ii, 779.
- Albumins**, molecular weights of (VAUBEL), A., i, 839.
 crystallography of (WICHMANN), A., i, 838.
- α - and β -Albumins** (WICHMANN), A., i, 838.
- Albumose**, Schrötter's, absorption spectrum of (BLYTH), T., 1166; P., 1899, 175.
- Albumose.** See also Proteose.
- Albumoses**, molecular weights of (VAUBEL), A., i, 839.
 of Witte's peptone (SCHRÖTTER), A., i, 316.
 action of formaldehyde on (LEPIERRE), A., i, 654.
 supposed bromine derivatives of (KURAÉEFF), A., i, 314.
 separation of, from malt, wort, and beer (LASZCZYNSKI), A., ii, 793.
 detection of, in animal liquids (RIEGLER), A., ii, 264.
 precipitation of (BAUMANN and BÖMER), A., ii, 195.
 estimation of (EFFRONT), A., ii, 716.
 separation of peptone from (MÜLLER), A., ii, 136.
- Alcohol.** See Ethylic alcohol.
- Alcohol**, $C_{16}H_{32}O$, in *Aspidium filix femina* (ÉTARD), A., ii, 792.
 $C_{34}H_{70}O$, from the wax of the humble bee, and its benzoyl derivative (SUNDVICK), A., i, 112.
- Alcohols** obtained from methylpropylbenzylideneaniline (BOUVEAULT), A., i, 287.
 molecular weight of, in benzene and naphthalene solutions (BILTZ), A., ii, 634.
 conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
 solubility of haloid salts in (ROHLAND), A., ii, 144.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
 action of, on their sodium derivatives (GUERBET), A., i, 472.
- Alcohols, polyhydric**, oxidation of, in the presence of ferrous iron (FENTON and JACKSON), T., 1; P., 1898, 240.
- Alcohols, cyclic**, reduction of the iodides and bromides of, by palladium-zinc couple (ZELINSKY), A., i, 181.
- Alcohols, primary and secondary**, action of chlorine on (BROCHET), A., i, 99.
- Alcohols and Phenols.** See:—
 Acetamidonaphthaquinol.
 Acetylcarbinol.
 α -Acetylpropylic alcohol.
 Allylic alcohol.
 Amylenic glycols.
 Amylic alcohols.
 Amylphenols.

Alcohols and Phenols. See also :—

p-Anhydrohydroxylaminobenzyl alcohol.
 Anhydro- α -naphthaquinoneresorcinol.
 2-Anisylideneacetyl-1-naphthol.
 Anthragallol.
 Benzenyl-*p*-cresol.
 Benzoylcreosol.
 Benzoylmethylcreosol.
 Benzylidihydrocarvol.
 Benzylguaiacol.
 Benzyl alcohol.
 Benzylmenthol.
 Benzylpulegol.
 Borneols.
 Butylbenzyl alcohol.
 $\alpha\gamma$ -Butylenic glycol.
 Butylic alcohols.
 Butylphenol.
 Camphenilol.
 Caparrapiol.
iso-Caprylic alcohol (*octylic alcohol*).
 Carvacrol.
 Catechol.
 Catechol ethylenic ether carbinol.
 Cholesterols.
 Cineol.
 Cresols.
 Cresolquinone.
 Cresolphénolquinone.
 Cresylaniline.
 Cresylpiperidine.
 Decanaphthenol.
 Decylic alcohol.
p-Desylphenol.
 Desylthymol.
 Diacetamido- β -naphthol.
 Diacetylene glycol.
 Diacetylphloroglucinol.
 Diamylic alcohol (*decylic alcohol*).
 Diamylresorcinol.
 Dibutylcatechol.
 Dibutylpyrogallol.
 Dibutylresorcinol.
 Dicarveol.
 γ -Diethylamino- $\alpha\beta$ -propylenic glycol.
 Diethylcarbinol (*amyl alcohol*).
 Diethylphenol.
 Dihydroresorcinol.
 Dihydroxydibenzylmesitylene.
 Dihydroxydiketonaphthadihydropyrazole.
 Dihydroxyflavone.
 Dihydroxynaphthaquinonediphenylmethane.
 Dihydroxynaphthaquinonetetramethylaminodiphenylmethane.
 Dihydroxypicoline.
 γ -Dimethylamino- $\alpha\beta$ -propylenic glycol.
 Dimethylethylcarbinol (*amyl alcohol*).

Alcohols and Phenols. See also :—

Dimethylethylcyclohexanol.
 Dimethylheptenol.
 Dimethylhydroresorcinol.
 Dimethylphloroglucinol.
 Dinaphthols.
 Dipentamethenylpinacene.
 Diphenylcarbinol.
 Diphenyldihydroxynaphthylmethane.
 Dipiperidylbutylic alcohol.
 Dipropenylic glycol.
 Estragol.
o-Ethoxy-2-benzylideneacetyl-1-naphthol.
 Ethoxycarbonylphenol.
 Ethoxyphenol.
 Ethylacetamidophenol.
 γ -Ethylamino $\alpha\beta$ -propylenic glycol.
 Ethylenic glycol.
 Ethylic alcohol.
 Ethylphenol.
 Eucarvone.
 Eugenols.
 Fenchylic alcohol.
 Furfurylic alcohol.
 2-Furfurylideneaceto-2-naphthol.
 Furfylhydroresorcinol.
 Geraniol.
 Glycerol.
 Glycide.
 Guaiacol.
 Heptylic alcohol.
 Hexamethylphloroglucinol.
cyclo-Hexanol.
 Hydrindene glycol.
 Hydrocinnamoin.
 Hydroresorcinol.
 Hydroxyanthranol.
 Hydroxychalkone.
 Hydroxy- ψ -cumylic alcohol.
 Hydroxyfluorene alcohol.
p-Hydroxymesitylic alcohol.
 Hydroxymethylantranol.
 Hydroxyphenyldimethylpyrimidine.
 Hydroxyphenylphthalazone.
 Hydroxyphenylphthalide.
 Illic alcohol.
r-Inositol.
iso-Lauronic alcohol.
 Lacidol.
 Lemonol (*geraniol*).
 Licareol.
 Licarhodol.
 Linalool.
 Menthanediol.
 Menthanetetrol.
 Menthol.
 Methebenol.
 Methylacetobutylic alcohol.
 γ -Methylamino- $\alpha\beta$ -propylenic glycol.
 3-Methylbenzhydrol.
 1'-Methyl-3'-3'-diethylindolinol.

Alcohols and Phenols. See also :—

Methylenedi-*p*-anhydroaminobenzyl alcohol.
 Methylheptenol.
 Methylhydroresorcinol.
 Methylic alcohol.
 Methyloldimethylnaphthalene.
 Methylphloroglucinol.
 Methylisopropenecyclohexenol.
 Methylpropylcarbinols (*amylic alcohols*).
 Methylpyrogallol.
 Morphenol.
 Morphol.
 Naphthaquinonetetramethyldiaminodiphenylcarbinol.
o-Naphtheneglycol.
 Naphthol.
 Nonenylic alcohol.
 Nopinolglycol.
 Octylic alcohol.
 Octylic glycol.
 Orcinol.
 Pentadecylic alcohol.
 Pentamethylphloroglucinol.
cyclo-Pentanediol.
cyclo-Pentanol.
 Phenol.
 Phenolsaccharein.
 Phenolthymoquinone.
 Phenoltoluquinone.
o-Phenylbenzyl alcohol.
 Phenylhydroresorcinol.
 Phenyl-3-methylantranol.
 Phenylmethylcarbinol.
 Phenylmethylocyclohexanol.
 Phenylmethyloxanthranol.
 Phloroglucinol.
 Phytosterol.
 Pinolglycol.
 Pinolol.
 Piperidylcarbinol.
 Polystichinol.
 Propargylic alcohol.
 Propylenic glycol.
 Propylic alcohols.
p-Propylphenol.
iso-Propylphenylmethylcyclohexanol.
 Pyrogallol.
 Quinol.
 Quinolbisdiphenylmethane.
 α -Quinolybutanetriol.
 Quinolyethanol.
 Quinolypropandiols.
 Resorcinol.
 Resorcinolsaccharein.
 Rhodinol.
 Saligenin.
 Santalol.
 Santonin.
 Sobrerythritol.
 Stilbenediol.

Alcohols and Phenols. See also :—

Terpineol.
 Tetramethyldiaminotriphenylcarbinol.
 Tetramethyloctodecatetrenediol.
 Tetramethylphloroglucinol.
 Tetraphenylcyclopentanediol.
 Tetrethylphenol.
 Thymol.
 Thymolphenolquinone.
 Toyl-3-methylantranol.
 Tolylmethyloxanthranol.
 Trihydroxyheptane.
 Trihydroxy picoline.
 Trimethylbenzimidazolol.
 Trimethylcarbinol (*tert. butylic alcohol*).
 Trimethylene-ethylenic glycol.
 Trimethylenic glycol.
 Trimethylethylenic glycol (*β -iso-amylic glycol*).
 Triphenylcarbinol.
 Triphenylcyclopentanediol.
 Triphenylvinyl alcohol.
n-Undecylic alcohol.
 Vinylic alcohol.
o-Vinylphenol.
p-Xylenol.
 Xylenolcarbinol.

Aldehyde. See Acetaldehyde :—

Aldehydes, obtained from methylpropylbenzylideneaniline (BOUVEAULT), A., i, 287.
 conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
 thermochemical data and stability of amines and amides derived from (DELÉPINE), A., i, 186.
 reduction of (KAUFFMANN), A., i, 152.
 detection and isolation of (BAMBERGER), A., i, 666.
 detection of (LUMIÈRE, LUMIÈRE and SEYEWETZ), A., i, 415.
 cyanhydrins of, methods of synthesis derived from the study of (COLSON), A., i, 251.

Aldehydes, amino-, constitution of (MAASS and WOLFFENSTEIN), A., i, 110.
 thio-, isomerism of (KLINGER), A., i, 859.

Aldehydes. See also :—

Acetaldehyde.
 Acetylvaleraldehyde.
 Acraldehyde (*acrolein*).
 Aldol.
 Asarylic aldehyde.
 Benzaldehyde.
iso-Butaldehyde.
 Butylbenzaldehyde.
iso-Butyraldol.

Aldehydes. See also :—

- Catecholglyoxal.
- Chloral.
- Cinnamaldehyde
- Citrals.
- Citriodorlaldehyde.
- Citronellaldehyde (*citronellal*).
- Cuminaldehyde.
- Dimethylbenzaldehyde.
- Dimethylsalicylaldehyde.
- Ethaneprotocatechuic aldehyde.
- Ethoxynaphthaldehyde.
- Formaldehyde.
- Furfuraldehyde.
- Geranial.
- Glyceraldehyde.
- Glycollic aldehyde.
- Glyoxal.
- Hydralcclulose.
- Hydroxybenzaldehyde.
- Hydroxydiethylbenzaldehyde.
- Hydroxyfurfuraldehyde.
- Hydroxynaphthaldehyde.
- iso*-Launonic aldehyde.
- allo*Lemonal.
- Licarhodol.
- Malonic aldehyde.
- Mesitylaldehyde.
- Methoxycoumaraldehyde.
- Methoxynaphthaldehyde.
- Methylalldimethylnaphthalene.
- 4-Methylfurfuraldehyde.
- Methyloctenonal.
- Methylphenylacetaldehyde.
- Methylisopropylbenzaldehyde.
- Naphthaldehyde.
- Paraldehyde.
- Phenylbenzaldehyde.
- Piperidoaldehyde.
- Propaldehyde.
- Propylvaleraldehyde.
- Quinolinealdehyde.
- Salicylaldehyde.
- Tolualdehyde.
- Tolylbenzaldehyde.
- Trimethoxybenzaldehyde.
- Valeraldehydes.
- Vanillin.
- Veratric aldehyde.
- β*-Aldehydeisobutyric acid** and its oxidation (PERKIN and SPRANKLING), T., 18.
- o*-Aldehydophenoxyacetic acid**, and its methylic salt (CAJAR), A., i, 147.
- o*-Aldehydophenylic ethylic carbonate**, and phenylhydrazine and salicylaldehydehydrazone (CAJAR), A., i, 146.
- β*-Aldehydopropionic acid** and the action of phenylhydrazine and of caustic soda on it; also its oxidation and reduction (PERKIN and SPRANKLING), T., 16; P., 1898, 112.

VOL. LXXVI. ii.

Aldimine.

Paraldimine, chloro-, and thio- (DELÉPINE), A., i, 327.

Aldol, preparation of (CLAISEN), A., i, 667.

Aldoses, oxidation of, by sorbose bacterium (BERTRAND), A., ii, 170.

***o*-Aldoximephenoxyacetic acid**, ethylic salt (CAJAR), A., i, 147.

Aleurites cordata, Japanese wood oil from the seeds of (KITZ), A., i, 864.

Aleuritic acid (TSCHIRCH and FARNER), A., i, 447.

Alga, influence of arsenic on, and their vegetative growth under various conditions (BOUILLHAC), A., ii, 238. iodine in fresh and salt water (GAUTIER), A., ii, 649.

Alinite. See Agricultural chemistry.

Alizarin, *mono*-metallic derivatives and acetyl and diacetyl derivatives of, (PERKIN), T., 433; P., 1899, 65. potassium, acetyl derivatives and dyeing properties of (PERKIN), T., 446, 454; P., 1899, 66. use of, in alkalimetry (GLASER), A., ii, 573.

Alizarin, bromo-, and 8-nitro-, potassium salts of (PERKIN), T., 436; P., 1899, 65.

Alizarin-yellow-A (*trihydroxybenzophenone*), potassium salt of (PERKIN), T., 442; P., 1899, 66.

Alkali carbonates, natural formation of (VATER), A., ii, 109. haloid salts, solubility of, in alcohols (ROHLAND), A., ii, 144. hydroxides, velocity of diffusion of (HÜFNER), A., ii, 9. metals, formation of carbides of (MOISSAN), A., ii, 554.

Alkalimetry, indicators for (GLASER), A., ii, 573. standard solutions for (PUCKNER), A., ii, 610.

Alkaline-earth metals, formation of carbides of (MOISSAN), A., ii, 554.

Alkalis, physiological action of (LOEB), A., ii, 167; (ZOETHOUT), A., ii, 235. estimation of, by iodine (WALKER and GILLESPIE), A., ii, 327. estimation of, in liver of sulphur (BARTHE), A., ii, 329. estimation of, in waters and in urine (BOHLIG), A., ii, 810.

Alkaloids, action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 648. from aroids (HÉBERT), A., i, 240. from a corpse (MECKE and WIMMER), A., i, 311. from *Solanaceae* (PINNER), A., i, 177.

Alkaloids from wallflower leaves and seeds (REEB), A., i, 378.
 detection in plants, and function of (BARTH), A., ii, 46.
 iodine derivatives of, and estimation of the constituents (PRESCOTT), A., i, 89.
 detection of (BERTRAND), A., ii, 457.
 estimation of (LINDE), A., ii, 826.
 estimation of, by iodine solution (SCHOLTZ), A., ii, 390, 584; (KIPPENBERGER), A., ii, 534, 584.
 estimation of, volumetrically (LINDE), A., ii, 535; (FALIÈRES), A., ii, 713.
 estimation of, in *nux vomica*, *belladonna*, and *ipecacuanha* (GORDIN and PRESCOTT), A., i, 651.
 estimation of, in urine (CHIBRET), A., ii, 459.

Alkaloids. See also:—

Aconitine.
 Anagyrine.
 Anhalamine.
 Anhalonine.
 Anhydroecgonine.
 Atropine.
apo-Atropine.
 Atroscine.
 Bebeerine.
 Belladonnine.
 Berberine.
 Brucine.
 Buxine.
 Caffeine.
allo-Caffeine.
 Cascarilline.
 Choline.
 Cinchonine.
 Cinchonidine.
 Cinchonine.
ε-Cinchonine.
δ-Cinchonine.
ψ-Cinchonine.
α-*iso*-Cinchonine.
apo-*iso*-Cinchonine.
tauto-Cinchonine.
 Cocaine.
 Codeine.
iso-Codeine.
 Conicine.
 Coniine.
 Creatinine.
 Cytisine.
 Damascenine.
 Delphinine.
 Deoxycaffeine.
 Deoxycinchonidine.
 Dihydrothebaine.
iso-Dihydrothebaine.
 Duboisine.
 Ecgonine.
 Emetine.

Alkaloids. See also —

Ethebenine.
 Eucaïne.
 Granatonine.
 Hydrastine.
 Hydroecgonidine.
 Hyosine.
 Hyoscyamine.
ψ-Hyoscyamine.
 Hypoxanthine.
 Laurotetanine.
 Lophophorine.
 Lycorine.
 Meconine.
 Methebenine.
 Mezcaline.
 Morphine.
 Morphothebaine.
 Narceine.
 Narcotine.
 Nicotine.
 Oscine.
 Papaverine.
 Pelletierine.
 Pelosine (*bebeerine*).
 Piperine.
 Prothebenine.
 Quinidine.
 Quinine.
 Scopolamine (*hyoscyne*).
i-Scopolamine.
 Scopoline (*oscine*).
 Sekisanine.
 Solanine.
 Staphisagroidine.
 Staphisagroine.
 Strychnine.
 Tetrahydropapaveroline.
 Thebaine.
 Thebenine.
 Theobromine.
 Tropine.
 Veratrine.
 Yohimbine.
 Yohimbine.

Alkyl groups, action of potassium persulphate on (MORITZ and WOLFFENSTEIN), A., i, 910.

***β*-Alkylhydroxylamines**, formation of, by electrolytic reduction of aliphatic nitro-derivatives (PIERON), A., i, 844.

Alkyl phosphates, volumetric analysis of (CAVALIER), A., ii, 55.

Alkylquinolinium hydroxides, constitution of (STIEGLITZ), A., i, 359.

Allene hydrocarbons, and their reactions with hydrogen bromide (IPATIEFF), A., i, 657.

Allium leaves, formation of starch in (PARKIN), A., ii, 790.

Allophanazide (THIELE and UHLFELDER), A., i, 118.

- Allophane**, constitution of (KASAI), A., ii, 435.
- Allophanyl-azo- and -hydrazo-isobutyronitriles** (THIELE and UHLFELDER), A., i, 118.
- Alloxan**, mercury compound of (KIESERITZKY), A., ii, 395.
- Alloxantin**, mercury compound of (KIESERITZKY), A., ii, 395.
- Alloxuric bases** from nucleic acids (NEUMANN), A., i, 467.
- of urine (KRÜGER and SALOMON), A., ii, 233.
- Allylacetone**, action of hypochlorous acid on (HENRY and ASCHMANN), A., i, 258.
- cyanhydrin, hydrolysis of (FITTIG and DE HAVEN-BOYD), A., i, 191.
- Allylamine**, action of acetic anhydride on; also the action of potash on its dibromide (CHIARI), A., i, 325.
- action of nitrosyl chloride on (SOLOMONINA), A., i, 473.
- Allylbenzene**, formation of (DAIN), A., i, 435.
- Allylcarbamide**, and action of bromine, iodine, and cyanogen on (RUNDQVIST), A., i, 17.
- ψ -**Allylcarbamide**, bromo-, and iodo- (RUNDQVIST), A., i, 17.
- Allyldipropylamine** and salts (MENSCHUTKIN), A., i, 937.
- Allylic alcohol**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
- and its bezenesulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
- action of phosphorus pentachloride on (PODLADTSCHIKOFF), A., i, 859.
- compound of, with sulphur dioxide (SOLOMONINA), A., i, 682.
- aluminium derivative of (TISTSCHENKO), A., i, 408.
- Allylic alcohol**, β - and γ -bromo-, and β - γ -dibromo- (LESPIEAU), A., i, 184.
- Allylnicotinamide** (PICTET and SUSSDORFF), A., i, 164.
- Allylparabanic acid** (*allyloxalylcarbamide*) (RUNDQVIST), A., i, 17.
- Allylphosphorous acid**, chloranhydride of, and action of bromine and iodine on (PODLADTSCHIKOFF), A., i, 859.
- Allylpiperidine** (MENSCHUTKIN), A., i, 937.
- Allylthiocarbamide** (*thiosinamine*), dicyanide of (RUNDQVIST), A., i, 16.
- ψ -**Allylthiocarbamide**, iodo- (RUNDQVIST), A., i, 18.
- Allylthiocarbimide**, estimation of, in seeds (KINZEL), A., ii, 825.
- Allylthioparabanic acid** (*allylthio-oxalylcarbamide*) (RUNDQVIST), A., i, 17.
- Allylurethane** (MANUELLI and COMAN-NUCCI), A., i, 888.
- Almandine** from Mexico (LENK), A., ii, 305.
- Alochrysin** and acetyl derivative (OESTERLE), A., i, 538.
- Aloes**, barbaloin and isobarbaloin in (LÉGER), A., i, 158.
- Natal aloins of (LÉGER), A., i, 820.
- detection of (KREMEL), A., ii, 389.
- Aloe-emodin** and its diacetyl derivative (OESTERLE), A., i, 538.
- Aloin**, oxidation derivative of (OESTERLE), A., i, 538.
- Alpinia malaccensis*, oil of (SCHIMMEL and Co.), A., i, 924.
- Athaea officinalis*, occurrence of betaine in the root of (ORLOFF), A., i, 4.
- Alum**, electrolysis of, with aluminium and carbon electrodes (WILSON), A., ii, 540.
- angles of contact between the crystal faces of, and its saturated solutions (ROTA), A., ii, 473.
- Alums**, electrolytic formation of (HOWE and O'NEAL), A., ii, 103.
- Aluminium**, properties of (DITTE), A., ii, 225, 292, 555.
- applications of (MOISSAN; DITTE), A., ii, 425, 426.
- impurities in (MINET), A., ii, 487.
- spectrum of (GRAMONT), A., ii, 199.
- electrode, in cells for direct and alternate currents (WILSON), A., ii, 540.
- mercury couple, use of, as a condensing agent (COHEN and SKIRROW), T., 887; P., 1899, 183.
- heat of combustion of (DITTE), A., ii, 426.
- action of, on solutions of its salts (LEMOINE), A., ii, 656.
- action of, on salts of the alkalis and alkaline earths, and on metallic oxides and oxides of carbon (FRANCK), A., ii, 102, 103.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- action of sulphur on (FRANCK), A., ii, 28.
- action of, on tellurium dioxide (LENNER), A., ii, 479.
- amalgamated, oxidation of, in contact with mercury (HUNT and STEELE), A., ii, 33.
- Aluminium alloys** with copper, chemical behaviour of (DITTE), A., ii, 425.
- Aluminium amalgam**, action of, on alcohols (TISTSCHENKO), A., i, 408.
- Aluminium salts**, diffusion of light by solutions of (SPRING), A., ii, 585.

Aluminium salts, inversion of sugar solutions by (KAHLENBERG, DAVIS, and FOWLER), A., ii, 470.

Aluminium bromide, heat of formation of (BEKETOFF), A., ii, 726.

bromination with, in the aliphatic series (MOUNEYRAT), A., i, 1.

chloride, influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.

sodium chloride, conductivity of aqueous solutions of (JONES and OTA), A., ii, 587.

hydroxide, formation of (HUNT and STEELE), A., ii, 33.

colloidal solution of (KRAFFT), A., ii, 473.

lead iodide (MOSNIER), A., ii, 222.

oxide (*alumina*), amount of, in Egyptian porcelain (LE CHATELIER), A., ii, 751.

solubility of, in fused silicates (MOROZEWICZ), A., ii, 762.

reduction of, by boron or silicon, in chlorine (DUBOIN and GAUTIER), A., ii, 653.

phosphate from Moravia (KOVÁČ), A., ii, 669.

precipitation of, and detection of, in presence of ferric phosphate (CAVEN and HILL), A., ii, 28.

phosphides, and carbide (FRANCK), A., ii, 102.

silicates, amorphous hydrated (KASAI), A., ii, 435.

sulphate, influence of, on the reaction between potassium permanganate and hydrochloric acid (WAGNER), A., ii, 275.

Aluminium, estimation and separation of:—

estimation of, in phosphates (BLATTNER and BRASSEUR), A., ii, 128.

separation of mercury from (JANNASCH and ALFFERS), A., ii, 60.

separation of phosphates from (ANTONY and MONDOLFO), A., ii, 330.

separation of zinc from (JENSCH), A., ii, 522).

Amalgams. See Mercury alloys.

Amarine, action of formaldehyde on (DELÉPINE), A., i, 234.

hydrochloride, from action of ammonium chloride on benzaldehyde (DELÉPINE), A., i, 187.

conversion of silver derivative of, into lophine (SNAPE and BROOKE), T., 211; P., 1899, 22.

isomeride of (SNAPE and BROOKE), T., 208, 211; P., 1899, 22.

Amber, discrimination of copal from (RÖSSLER), A., ii, 530.

Amber-like resin from Canada (KLEBS), A., ii, 34.

Amethyst, colouring matter of (NABL), A., ii, 561.

Amides, preparation of (ASCHAN), A., i, 14.

derived from aldehydes (DELÉPINE), A., i, 664.

of saturated mono- and di-basic fatty acid, melting points of (SOLONINA), A., ii, 633.

separation of, from malt, wort, and beer (LASZCZYNSKI), A., ii, 793.

substituted, hydrolysis of (REMSEN), A., i, 507.

Amidic nitrogen, distinction between proteid nitrogen and (MALET), A., ii, 576.

Amidines, amino- and diamino-, and β -naphthol-azo- and tetrazo-dyes obtained from (MUTTELET), A., i, 355.

Amidulin, function of, in leaves, seeds, and roots (GONNERMANN), A., ii, 791.

Amines derived from aldehydes (DELÉPINE), A., i, 186, 664.

taste of salts of (HÖBER and KIESOW), A., ii, 207.

aromatic, maleic derivatives of (GIUSTINIANI), A., i, 349.

fatty, action of iodine on (NORRIS and FRANKLIN), A., i, 664.

action of nitrosyl chloride on (SOLONINA), A., i, 473, 561.

and aromatic, action of oxidising agents on (OECHSNER DE CONINCK and COMBE), A., i, 244.

primary, action of aqua regia on (SOLONINA), A., i, 663.

secondary and tertiary, action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1004; P., 1899, 124.

secondary and tertiary, oxidation of (OECHSNER DE CONINCK), A., i, 472.

Amines. See also:—

Acetyl- α -naphthylamine.

Acetylphenylhydrazoncarbodiphenylamine.

Acetyltrimethyl-*m*-phenylenediamine.

Albamine.

Allylamine.

Allyldipropylamine.

Amylamine.

Aniline.

Anisidine.

Auramine.

Benzaldehyde, amino-.

Benzoylphenyleneamidine.

Benzylallylamine.

Benzylallylaniline.

Benzylamine.

Benzylaniline.

Amines. See also :—

Benzyl-*o*-anisidine.
 Benzyl-diethylamine.
 Benzyl-dimethylamine.
 Benzylethylenediamine.
 α -Benzylhydroxylamine.
 Benzylhydroxypropylamine.
 Benzylideneaminoguanidine.
 Benzylidene-*p*-anisidine.
 Benzylideneazone, amino-.
 Benzylidenebornylamine.
 Benzylidene*isodiphenyl*hydroxyethyl-amine.
 Benzylidene-*m*-tolylenediamine.
 Benzylidenexylidine.
 Benzylmethylaniline.
 Benzylisonitramine.
 Benzyl-nitraniline.
 Benzylpiperidine.
 Benzylpropylamine.
 Butylamines.
 Butyl-nitramine.
 Campholene, amino-.
 α -Camphylamine.
 Camphor, amino-.
 Cannabinolactone.
 Chitosamine (*glucosamine*).
 Coniine.
 Cresylaniline.
 Cresylpiperidine.
 β -Decanaphthenes, amino-.
 Diamylaniline.
 Di*iso*amylamine.
 Di*iso*amylidene-ethylenediamine.
 Dianilinoquinone.
 Dibenzyl, amino-.
 Dibenzylamine.
 Dibenzylaniline.
 Dibenzylethylenediamine.
 Dibenzylidene-*m*-phenylenediamine.
 Di*isobutyl*amine.
 Di*isobutylidene*-ethylenediamine.
 Dicyanodiamidine, amino-.
 Diethylamine.
 Diethylaminobenzonitrile.
 Diethylaniline.
 Diethyldiaminodi-*o*-tolylmethane.
 Diethylenetetramethylenetetramine.
 β -Diethylhydroxylamine.
iso-Diethylnitramine.
 Diethyl-*o*-phenetidine.
 Diethyl-*m*-xylidine.
 Dihydrocaroyldiamine.
 Dihydro-naphthaquinoneaminoguanidine.
 Dihydroquinoneaminoguanidine.
 Dihydroquinone*bis*aminoguanidine.
 Dihydrophenylacridine, amino-.
 Dihydroxydiphenylamine.
 Dihydroxyethylamine.
 Dihydroxylamine.
 Dimethylamine.

Amines. See also :—

Dimethylaniline, amino-.
 Dimethylanilinophenylmethane.
 Dimethylbenzylideneaniline.
 Dimethyldiaminodi-*o*-tolylmethane.
 Dimethyleneditoluidine.
 Dimethylindazole, amino-.
 Dimethylnitramine.
 Dimethyl-*o*-nitraniline.
 $\alpha\beta$ -Dimethylpropylamine (*amylamine*).
 Dimethyltoluidine.
 Dimethyltolylenediamine.
 Dimethyl-*m*-xylidine.
 Dioxymethylpurine, amino-.
 Diphenacyldihydrophenanthrene, amino-.
 Diphenyl, amino-.
 Diphenylamide.
 Diphenylamine.
 Diphenylbenzenylamidine, amino-.
 Diphenyldibenzylketodimethylamine.
 Diphenyldimethylethylenediamine.
 Diphenylethylenediamine.
 Diphenylhydroxyethylamines.
iso-Diphenylhydroxyethylamine.
 Diphenylmethane, amino-.
 Diphenylmethylamine.
 Diphenylmethylenaniline.
 Diphenyltetrahydroglyoxaline.
 Diphenyl-*o*-toluidine.
 Diphenyltrimethylenediamine.
 Dipropylamines.
 Di*isopropyl*aniline.
 Dipropylhydroxylamines.
 Dipropyl-*p*-nitraniline.
 Di-*p*-tolyl-dimethylenediamine.
 Ditolylphenylmethane, amino-.
 Ditolyltrimethylenediamine.
 Dixylylmethane, amino-.
 Ethenyl*tri*aminonaphthalene.
 Ethenyl-naphthylenediamine.
 Ethylamine.
 Ethylaniline.
 Ethyl*isobutyl*amine.
 Ethylenediamine.
 Ethylideneaminoguanidine, amino-.
 Ethylidenediphenamine.
 Ethylidene-*p*-ditolamine.
 Ethylidenehydroxybutylene-ethylene-diamine.
iso-Ethylmethylnitramine.
 Ethylnitramine.
 Ethyl-*o*-phenetidine.
 Ethylpropylnitramines.
 Ethyltoluidine.
 Ethyl-*m*-xylidine.
 Fluoran, amino-.
 Formoguanamine.
 Glucosamine.
 Glycollamine.
 Guanidine, amino-.

Amines. See also:—

Heptamethylenediamine.
 Heptylamine.
 Hexadecylamine.
 Hexamethylenediamine.
 Hexamethylenetetramine.
 Hexamethyl-*p*-leucaniline.
cyclo-Hexane, amino-.
 Hexylamine.
 α -Hydrindamine.
 Hydroxyaniline.
 Hydroxybenzylideneaminoguanidine.
 Hydroxybenzylidenebornylamines.
o-Hydroxybenzylidenebromomethyl-amine.
 Hydroxybenzylnitraniline.
 Hydroxy- ψ -cumylaniline.
 Hydroxy- ψ -cumylpiperidine.
 Hydroxydiphenylamine.
 Hydroxyethylamine.
 Hydroxyethyl-*p*-nitraniline.
 Hydroxyethyl-*p*-toluidine.
 Hydroxyhexylamine.
 Hydroxylamine.
p-Hydroxymesitylaniline.
p-Hydroxymesitylpiperidine.
 Hydroxy-*o*-phenylenediamine.
 Hydroxyphenylmethylquinoline, amino-.
p-Hydroxy-*o*-xylylaniline.
p-Hydroxy-*o*-xylylpiperidine.
 Indazole, amino-.
 Mesitylamine.
 δ -Methoxybutylamine.
 Methylallylaniline.
 Methylamine.
 Methylaniline.
 Methylbornylamine.
 Methylbutylallylcarbinamine.
 Methylbutylenediamine.
 Methylene-bisaniline.
 Methylene-bispiperidine.
 Methylene-di-*p*-phenetidine.
 Methylenebiphenylhydroxylamine.
 Methyllethylisobutylamine.
iso-Methyllethylnitramine.
 Methylgranatylamines.
 Methylindazole, amino-.
 Methylnitramine.
 Methyl-*o*-nitraniline.
 Methylnitrosaminotoluidine.
 Methylcyclopentane, amino-.
 Methylpropylbenzylideneaniline.
 Methylpurine, amino-.
 Methyltetrahydroquinoline.
 Methyl-*o*-toluidine.
 Methyltriazene, bisaminoimino-, amino-.
 Methyltriazole, amino-.
 Methylxylidine.
 Methylxylylenediamine.
 Naphthaphenazine, amino-.

Amines. See also:—

Naphthaquinone-bisaminoguanidine.
 Naphtholaminoguanidine.
 Naphthylamine.
 Nonomethylenediamine.
 Octomethylenediamine.
 Oxypurine, amino-.
 Pentadecylamine.
 Pentane, amino-.
 Phenanthriazine, amino-.
 α -Phenethylamine.
 Phenetidine, amino-.
 Phenylamine.
 Phenylaniline.
 Phenylbenzimidazole, amino-.
 Phenylbenzoxazole, amino-.
 Phenylbeuzylcarbaryl-*o*-tolylguanidine.
 Phenylbenzylglycine.
 Phenylcamphoformenamine.
 Phenylidimethylacridine, amino-.
 Phenylenediamine.
 Phenylidixylmethane, amino-.
 Phenylfurfurylamine.
 Phenylhydroxylamine.
 Phenylmethylethylsotriazole, amino-.
 Phenylmethylcyclohexane, amino-.
 Phenylmethylisopropylmethylamine.
 Phenylnitramine.
 Phenyl-*m*(*p*)-oxytolimidazole, amino-.
 Phenyl-*o*-phenylenebenzenylamidine, amino-.
 Phenylpyridazine, amino-.
 Phenyltolenylenediamine.
 Propylamine.
o-Propylaniline.
 Propylenediamine.
iso-Propylethylnitramine.
iso-Propylmethylnitramine.
 Propylnitramine.
 Pyridine, amino-.
 Tetraethyldiaminodi-*o*-tolylmethane.
 Tetrahydronaphthylamine.
r-Tetrahydropapaverine.
 Tetrahydroquinoline.
 Tetramethyldiaminodiphenylmethane.
 Tetramethylbenzidine.
 Tetramethyldiphenylethane, amino-.
 Tetramethylenediamine.
 Tetramethylenedi-*o*-phenylenedi-amine.
 Tetraphenylphenylenediamine.
 Tetramethylthioaniline.
 Thiophen, amino-.
 Tolane, amino-.
 Toluidines.
m-Tolylenediamine.
 Tolylenemethylamine.
 Tolyhydroxylamine.
 Tolydienenitraniline.
 Tolylmethylnitramine.
 δ -*p*-Tolyloxybutylamine.

Amines. See also :—

- p*-Tolyl-*o*-phenylenebenzenylamidine, amino-.
- Tolylphenylenediamine.
- Triacetoneamine.
- Triacetonylamine.
- Trianilinobenzene.
- Triazole, amino-.
- Tribenzylamine.
- Triethylamine.
- Trihydroxyethylamine.
- Trimethylamine.
- Trimethylene-ethylenediamine.
- Trimethylenetrianiiline.
- Triphenylamine.
- Triphenylguanidine.
- Triphenylmethanes, amino-.
- Tripropylamine.
- Tritolylguanidine.
- n*-Undecylamine.
- Xylidine.
- Xylamine.
- Xylmethylnitrosamine, amino-.
- Amelide** (*melanurenic acid*), and di-thio-, formation of (DIELS), A., i, 406.
- Ammonia**, from action of sodium amalgam on sodium nitrite or nitrate (DIVERS), T., 87; P., 1898, 222.
- electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
- melting point of (LADENBURG and KRÜGEL), A., ii, 545.
- liquid, properties of (FRANKLIN and KRAUS), A., ii, 284.
- heat of combination of, with water (BERTHELOT), A., ii, 727.
- molecular rise in boiling point of, caused by dissolved substances (FRANKLIN and KRAUS), A., ii, 202.
- cause of dissociative power of (BRÜHL), A., ii, 10.
- as a solvent (FRANKLIN and KRAUS), A., ii, 208.
- solubility of silver chloride and iodide in (JARRY), A., ii, 738.
- velocity of diffusion of, through water and through agar jelly (HÜFNER), A., ii, 9.
- solubility of, in aqueous solutions of silver nitrate (KONOWALOFF), A., ii, 418.
- action of electric glow discharge on mixtures of, with oxygen (MIXTER), A., ii, 267.
- action of methylic chloride, bromide, and iodide on (DÜBOWSKY), A., i, 855.
- action of, on mercuric or cupric chlorides dissolved in organic solvents (NAUMANN), A., ii, 423.

- Ammonia**, compound of, with arsenic and sodium (HUGOT), A., ii, 151.
- compounds of, with metallic salts (MATTHEWS), A., ii, 295, 296; (ABEGG and BODLÄNDER), A., ii, 543.
- action of, on seeds, seedlings, and water-plants (SANDSTEN), A., ii, 320.
- conversion of, into nitrates and nitrites in soils (DEMOUSSY), A., ii, 443.
- detection of (RIEGLER), A., ii, 180.
- estimation of, in urine (CAMERER and SÖLDNER), A., ii, 825.
- estimation of, in waters (WINKLER), A., ii, 805.
- Ammonio-metallic salts**, constitution of (REITZENSTEIN), A., ii, 95.
- Ammonio-potassium, -sodium, -lithium, and -calcium** (MOISSAN), A., ii, 152.
- Ammonio-silver** chlorides and iodides, preparation and dissociation of (JARRY), A., ii, 738.
- iodate (ROSENHEIM and LIEBKNECHT), A., ii, 743.
- nitrate, preparation and thermochemistry of (BERTHELOT and DELÉPINE), A., ii, 748.
- Ammonium amalgam** (POCKLINGTON), A., ii, 200.
- Ammonium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- luminous phenomena produced by, and fused potassium nitrate (TOMMASI), A., ii, 483.
- equilibrium between manganous hydroxide and (HERZ), A., ii, 752.
- taste of (HÖBER and KIESOW), A., ii, 207.
- effect of, on growth of *Aspergillus niger* (TANRET), A., ii, 170.
- See also Agricultural chemistry.
- Ammonium antimonate** (SENDERENS), A., ii, 557.
- azoimide, molecular weight and spectrum of, and ammonium cobalto-azoimide (CURTIUS and RISSOM), A., ii, 91, 92.
- perborate, decomposition of (TANATAR), A., ii, 553.
- bromide, fluidity and conductivity of, (DENNHARDT), A., ii, 351.
- osmium bromide (ROSENHEIM and SASSERATH), A., ii, 665.
- selenibromide (LENHER), A., ii, 19.
- perchlorate, use of, in explosives (ALVIST), A., ii, 414, 647, 748.
- chloride conductivities of, mixed solutions of, potassium chloride and (JONES and KNIGHT), A., ii, 628.
- fluidity and conductivity of (DENNHARDT), A., ii, 351.

Ammonium chloride, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 equilibrium in systems containing water, ferric chloride, and (MOHR), A., ii, 15.
 action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
 double chlorides, dissociation of, change of entropy in (MATIGNON), A., ii, 273.
 cerium *hexachloride* (KOPPEL), A., ii, 98.
 ferric chlorides (MOHR), A., ii, 15.
 magnesium chloride, and zinc bromide, conductivities of, solutions of (JONES and KNIGHT), A., ii, 628.
 mercuric chloride, conductivity of, aqueous solutions of (JONES and OTA), A., ii, 587.
 constitution of (PESCI), A., ii, 750.
 palladium chloride, electrolysis of (COWPER-COLES), A., ii, 755.
 dissociation of, change of entropy in (MATIGNON), A., ii, 273.
difluoriodate (WEINLAND and LAUENSTEIN), A., ii, 363.
 fluoromolybdates, fluorosilicate, fluorouranate and fluorotitanate, dissociation and conductivity of (MIOLATI and ALVISI), A., ii, 350.
monofluoroselenate (WEINLAND and ALFA), A., ii, 595.
 manganic iodate (BERG), A., ii, 426.
 lead iodide (MOSNIER), A., ii, 222.
 mercuric iodide, action of water on (FRANÇOIS), A., ii, 597.
 nitrate, fluidity, and conductivity of (DENNHARDT), A., ii, 351.
 melting point and transition curves of (TAMMANN), A., ii, 636.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 influence of, on the boiling point of liquid ammonia (FRANKLIN and KRAUS), A., ii, 202.
 deliquescence of (KORTRIGHT), A., ii, 644.
 reduction of, by sodium amalgam (DIVERS), T., 92.
 explosives, use of potassium chlorate in (LE CHATELIER), A., ii, 647.
 double compound of, with mercuric chloride (HOFMANN and MARBURG), A., i, 487.
 separation of, from sodium sulphate (ROCA), A., ii, 358.
 praseodymium nitrate and sulphate (SCHEELE), A., ii, 99.

Ammonium hydrogen hyponitrite (DIVERS), T., 121.
 osmium (BRIZARD), A., ii, 559.
 hydrazine hypophosphate (SABANÉEFF), A., ii, 364.
 phosphate. See Agricultural chemistry.
 magnesium phosphate, composition of (GOOCH and AUSTIN), A., ii, 451.
 pyrophosphate (BERTHELOT and ANDRÉ), A., ii, 156.
 phosphite, molybdiolate, and tungstiodate (CHRÉTIEN), A., ii, 363.
 selenite, hydrogen selenite, and trihydrogen diselenite (DIVERS and HAGA), T., 539; P., 1899, 102.
 sulphate, galvanic polarisation in solutions of (JAHN), A., ii, 542.
 thermal changes on diluting saturated solutions of (POLLOK), P., 1899, 8.
 equilibrium between ethylic alcohol, water, and (DE BRUYN), A., ii, 591.
 See also Agricultural chemistry.
 antimony sulphate (GUTMAN), A., ii, 34.
 iron alum and chromium alum (HOWE and O'NEAL), A., ii, 103.
 vanadium sulphate (PICCINI), A., ii, 297.
 magnesium sulphide (FRANKLIN and KRAUS), A., ii, 284.
 sulphite, anhydrous, formation of (DIVERS and OGAWA), T., 534.
 hyposulphite, and hydrogen sulphite (PRUD'HOMME), A., ii, 554.
 thiosulphate, electrolysis of (PIERON), A., ii, 587.
 sodium *monotungstoperiodate* (ROSENHEIM and LIEBKNECHT), A., ii, 744.
pyroperovanadate (MELIKOFF and PISARJEWSKY), A., ii, 298.
Ammonium organic compounds :—
 Ammonium acetate, solubility of lead sulphate in aqueous (LONG), A., ii, 812.
 ethyl selenite (DIVERS and HAGA), T., 537; P., 1899, 101.
iso-nitracetone (LUCAS), A., i, 433.
 vanadium thiocyanate (CIOCI), A., i, 321.
 Ethyl ammoniumsulphite (DIVERS and OGAWA), T., 533; P., 1899, 101.
Amphibole. See Hornblende.
Amygdalin, heats of combustion, formation and dissolution of (BERTHELOT), A., ii, 726.
 action of cuprous chloride on (RABAUT), A., i, 557.
iso-Amylactic acid. See Heptoic acid.

- iso-Amylacetoacetic acid**, ethylic salt, action of hydrocyanic acid on; reduction (AUDEN, PERKIN, and ROSE), T., 912; P., 1899, 162.
 ethylic salt, preparation of methyl *iso*-amyl diketoxime from (FILETI and PONZIO), A., i, 111.
- iso-Amylacetone**, action of hydrocyanic acid on (AUDEN, PERKIN, and ROSE), T., 920; P., 1899, 163.
- sec-Amylamine** (*β*-aminopentane) and its salts (KURANOFF), A., i, 474.
- Amylamine** (*αβ*-dimethylpropylamine), and its hydrochloride and oxalates (TRACIATTI), A., i, 855.
- Amylase** (BOURQUELOT and HÉRISSEY), A., i, 93.
 action of, on starch and various worts (PETIT), A., i, 559.
- Amylbenzene**, and its nitro-derivative (KONOWALOFF and EGOROFF), A., i, 801.
- iso-Amylchlorophosphine** (GUICHARD), A., i, 563.
- β-iso-Amylcitraconic anhydride** (LAWRENCE), P., 1899, 164.
- α-iso-Amylcrotonic acid**, and oxidation (AUDEN, PERKIN, and ROSE), T., 920; P., 1899, 163.
- α-iso-Amylene**-(*isopropylethylene*), action of bromine on (IPATIEFF), A., i, 470.
- β-iso-Amylene** (*trimethylethylene*), and its bromo- and dibromo-derivatives (IPATIEFF), A., i, 470.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 action of hypobromous acid on (MOKIEWSKY), A., i, 729.
 action of nitric anhydride on (DEM-JANOFF), A., i, 845.
- Amylene** (*trimethylethylene*), dibromo-, action of ethylic sodiomalonate on (IPATIEFF), A., i, 481.
 chloro-(2-methyl-3-chlorobutene) (BROCHET), A., i, 100.
- Amylenic bromide**, action of solution of aluminium bromide in carbon disulphide on (KONOWALOFF), A., i, 471.
- γ-Amylenic** (*α-methylethylethylene*) bromide, β-bromo-derivative (WASILÉFF), A., i, 786.
- iso-Amylenic glycol**, dibromo-, from oxidation of isoprene dibromide (MOKIEWSKY), A., i, 727.
- β-iso-Amylenic glycol** (*trimethylethylene glycol*), action of hydrogen bromide on (MOKIEWSKY), A., i, 729.
- iso-Amylenic βγ-nitrosate** (DEM-JANOFF), A., i, 845.
- i-iso-Amylic alcohol** and its benzene-sulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
- iso-Amylic alcohol** (*fermentation amylic alcohol*), specific rotation of (BRUCHONENKO), A., ii, 265.
 and its ethereal salts, optical activity of (TSCHUGAÉFF), A., ii, 3.
 dielectric constant of, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 critical temperature of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
 and water, mutual solubilities of (HERZ), A., ii, 83.
 action of hydrogen peroxide on, in presence and absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.
 action of zinc chloride on (WALTHER), A., i, 323.
 aluminium derivative of (TISTSCHENKO), A., i, 408.
 sodium derivative, action of on ethylic salts of α-bromo-fatty acids (BISCHOFF), A., i, 670.
 examination of commercial (RICHMOND and O'SHAUGHNESSY), A., ii, 579.
 bromo-, and action of zinc dust on (MOKIEWSKY), A., i, 729.
- Amylic alcohol** (*sec-butylcarbinol*, *methyl-ethylcarbinol*), density, specific rotation and molecular volume of (FRANKLAND), T., 358.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
- Amylic alcohol** (*diethylcarbinol*), amino-, and its platinochloride; also the action of phenylthiocarbimide, ethylthiocarbimide, or hydrobromic acid on it (JANECKE), A., i, 477.
- Amylic alcohol** (*methylpropylcarbinol*), action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
- Amylic alcohol** (*methylisopropylcarbinol*), nitro-, action of formaldehyde on (HENRY), A., i, 729.
- tert.-Amylic alcohol** (*dimethylethylcarbinol*, *amylene hydrate*), specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 effect of pressure on melting point curves of (TAMMANN), A., ii, 636.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
 action of chlorine on (BROCHET), A., i, 100.

- tert.*-**Amylic alcohol** (*dimethylethylcarbinol*, *amylen hydrate*), action of phosphorus tribromide on (MENSCHUTKIN), A., i, 937.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
phenylurethane (LAMBLING), A., i, 53.
- Amylic** ethylic ether, density, specific rotation, and molecular volume of (FRANKLAND), T., 360.
 hydrogen carbonate (HEMPEL and SEIDEL), A., ii, 152.
 nitrate, assay of (FISCHER and ANDERSON), A., ii, 618.
 selenide, specific rotation of (BRJUCHONENKO), A., ii, 265.
 sulphide, *disulphide*, and iodide, bromide, and chloride, specific rotation of (BRJUCHONENKO), A., ii, 265.
tetra- and *tri-*sulphides (TROEGER and HORNUNG), A., i, 906.
- iso*-**Amylic** *l*-amylic ether, specific rotation of (BRJUCHONENKO), A., ii, 265.
- tert.*-**Amylic chloride** (*2-methyl-2-chlorobutane*), from action of chlorine on *tert.*-amylic alcohol (BROCHET), A., i, 100.
- iso*-**Amylidenebismalonic acid** (*heptanotetracarboxylic acid*), ethylic salt (KNOEVENAGEL), A., i, 116.
- Amylidenecyanhydridin**. See α -Hydroxy-*iso*-hexonitrile.
- Amylketo- ψ -nitrole**, and its decomposition and hydrolysis (PONZIO), A., i, 667.
- iso*-**Amylmalonic acid**, thermochemistry of (MASSOL), A., ii, 143.
l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
- Amyl mercaptan*, specific rotation of (BRJUCHONENKO), A., ii, 265.
- Amylnicotinamide** (PICTET and SUSSDORF), A., i, 164.
- Amylodextrin**, nitration and attempted recovery of; also its constitution (BROWN and MILLAR), T., 311; P., 1899, 13.
- Amyloid degeneration**, chemistry of (KRAWKOW), A., ii, 42.
- iso*-**Amyloxychlorophosphine** (GUICHARD), A., i, 564.
- p*-**Amylphenol**, synthesis of (GUREWITSCH), A., i, 880.
- p*-*iso*-**Amylphenol**, synthesis of (MEISSEL), A., i, 880.
- iso*-**Amylphosphinic** and *iso*-**Amylphosphinous acids** (GUICHARD), A., i, 564, 565.
- 1-iso*-**Amylpipecoline**, and its salts, rotation of (HOHENEMSER and WOLFFENSTEIN), A., i, 937.
- iso*-**Amylpipeidine oxide** and *iso*-**Amylpiperidinesulphonic anhydride** (AUERBACH and WOLFFENSTEIN), A., i, 936.
- Amylradicle**, optical activity of, influence of elements on (WALDEN), A., ii, 537.
- iso*-**Amylsuccinic acid** (*heptanedicarboxylic acid*) and salts (FITTIG and SCHIRMACHER), A., i, 338.
 and action of methylic iodide on, in presence of sodium ethoxide (LAWRENCE), P., 1899, 163.
 β -cyano-, ethylic salt, and hydrolysis (LAWRENCE), P., 1899, 163.
- iso*-**Amylthiochlorophosphine** and *iso*-**Amylthiophosphinic acid**, ethylic salt (GUICHARD), A., i, 564, 565.
- iso*-**Amylxanthic acid** potassium salt, electrolysis of solutions of (SCHALL and KRASZLER), A., i, 414.
- Anabsinthin** from *Artemisia absinthium* (TRILLAT), A., i, 377.
- Anæmia, pernicious**, action of arsenic in (STOCKMAN and GREIG), A., ii, 167.
- Angyrrine**, and *di*bromo-derivative (KLOSTERMANN), A., i, 960.
- Analcite** from Caucasus (GLINKA), A., ii, 672.
- Analysis, organic**, use of compressed oxygen and soda-lime in (BENEDICT and TOWER), A., ii, 520.
 estimation of traces of iodine in (BOURET), A., ii, 516.
 estimation of nitrogen in (HOPKINS), A., ii, 611.
 estimation of nitrogen in electrolytically (BUDE and SCHOU), A., ii, 693.
 estimation of sulphur, chlorine, bromine, and iodine (LONGHI), A., ii, 328.
- Analysis, quantitative**, without using hydrogen sulphide (RAWITSCH), A., ii, 578.
- Anatase** ("favas") from Brazil (HUSAK), A., ii, 432.
 from Dublin (O'REILLY), A., ii, 497.
- Andesite** from Santorin, secondary minerals in (LACROIX), A., ii, 305.
- Anemonin** and **Anemonolic acid** (MEYER), A., i, 930.
- Anethoil**, action of ozone on (OTTO), A., ii, 282.
- Anglesite** from Sardinia (MILLOSEVICH), A., ii, 492.
- Anhalamine**, presence of, in *Anhalonium Lewinii* heads (KAUDER), A., i, 650.
- Anhalonine**, physiological action of (DIXON), A., ii, 681.
- Anhydracetonebenzil**, condensation of, with benzaldehyde, cuminaldehyde, cinnamaldehyde, and benzil (JAPP and FINDLAY), T., 1023; P., 1899, 164.

- Anhydrazetonebenzil- β -carboxylic acid**, condensation of, with benzaldehyde (JAPP and FINDLAY) T., 1025; P., 1899, 65.
- Anhydrazetonedibenzil** (JAPP and FINDLAY), T., 1025; P., 1899, 164.
- Anhydride**, $C_{11}H_{12}O_4$, from nitrosocorydaldine (DOBBIE and LAUDER), T., 674; P., 1899, 129.
- $C_{13}H_{18}O_4$, from action of ethylic sodiumalonate on pulegone (VORLÄNDER and GÄRTNER), A., i, 259.
- Anhydrides**, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
- of dibasic organic acids, condensation with sodium derivatives of phenols (SCHRYVER), T., 661; P., 1899, 121.
- α -Anhydrobenzillævulic acid**, condensation of, with benzaldehyde, (JAPP and FINDLAY), T., 1024; P., 1899, 164.
- Anhydrobisdiketohydrindene** (*bindone*) (WISLICHENUS), A., i, 219.
- Anhydrobis- β -hydrindone** (HEUSLER and SCHIEFFER), A., i, 365.
- Anhydrocamphoronic acid**, sodium, silver, and methylic salts: constitution (ASCHAN), A., i, 69.
- Anhydrodiacetylpicrotin** (MEYER and BRUGER), A., i, 227.
- Anhydrodigitoxigenin** (KILIANI), A., i, 71.
- Anhydroecgonine**, constitution of (WILLSTÄTTER and MÜLLER), A., i, 178.
- Anhydrohomocamphoronic acid** (LAPWORTH and CHAPMAN), T., 998; P., 1899, 160.
- Anhydro- p -hydroxy- ψ -cumylic bromide**, bromo-, its acetate, and *di*bromo- (AUWERS and ERCKLENTZ), A., i, 35.
- Anhydro- p -hydroxymesitylic alcohol**, *di*bromo-, bromide of (AUWERS and ALLENDORFF), A., i, 32.
- Anhydro- p -hydroxy- o -xylylic bromide**, *tri*bromo- (AUWERS and DE ROVAART), A., i, 34.
- p -Anhydrohydroxylaminobenzylic alcohol**, polymeride of (LÖB), A., i, 122.
- Anhydroindoneresorcinol ether** and its acetyl derivative (LIEBERMANN), A., i, 523.
- Anhydro- α -naphthaquinoneresorcinol** and its acetyl derivative (LIEBERMANN), A., i, 523.
- Anhydropicrotin**, nitro- (MEYER and BRUGER), A., i, 227.
- Anhydrosaligenin bromide**, bromo-, and *di*bromo- (AUWERS and BÜTTNER), A., i, 37.
- Anilides**, action of fuming nitric acid on (KUNZ-KRAUSE), A., i, 591.
- Aniline**, depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
- influence of, on the boiling point of liquid ammonia (FRANKLIN and KRAUS), A., ii, 202.
- and water, mutual solubilities of (HERZ), A., ii, 83.
- equilibrium between water, phenol, and (SCHREINEMAKERS), A., ii, 739.
- aminolytic constant of, in presence of various acids (GOLDSCHMIDT and SALCHER), A., ii, 551.
- absorption of argon by (BERTHELOT), A., ii, 653.
- vapour, action of electric glow discharge on mixtures of, with oxygen (MIXTER), A., ii, 267.
- action of substituents on (ARMSTRONG), P., 1899, 176.
- action of ozone on (OTTO), A., ii, 232.
- behaviour of, towards fused alkali nitrates (NÄGELI), A., i, 916.
- oxidation of (BAMBERGER and TSCHIRNER), A., i, 347.
- direct oxidation of, to phenylhydroxylamine (BAMBERGER and TSCHIRNER), A., i, 687.
- colouring matters obtained from, by action of titanium chloride (KLING), A., i, 429.
- condensation of, with *ad*-*di*bromopentane (SCHOLTZ and FRIEMEHLT), A., i, 541.
- and *p*-bromo-, and *p*-nitro-, velocity of diazotisation of (HANTZSCH and SCHÜMANN), A., ii, 550.
- compounds of, with metallic salts (MATTHEWS), A., ii, 296.
- hydrochloride, action of chromic acid on (OECHSNER DE CONINCK), A., i, 244.
- mercurichlorides (SWAN), A., i, 38.
- phosphate (KLAGES and LICKROTH), A., i, 599.
- stannochlorides and stannichloride (SLAGLE), A., i, 39.
- zincochlorides and zinco-bromide (BASE), A., i, 40.
- estimation of (DENIGÈS), A., ii, 826.
- estimation of, volumetrically (FRANÇOIS), A., ii, 713.
- Aniline**, β -*tri*bromo-, from action of bromine on hydrogen potassium anilinedisulphonate (BAGNALL), T., 281.
- p*-chloro-, and 2:4-*di*chloro-, from *p*-nitrophenylhydrazine (HYDE), A., i, 689.
- 2:4:6-*tri*chloro-, 2:4-*di*chloro-, *p*-chloro-, and *exo*-*di*chloro- (BAMBERGER, BÜSDORF, and SZOLAYSKI), A., i, 341, 342.

- Aniline**, 2-chloro-6-iodo-4-nitro- (WILLGERODT), A., i, 586.
m-nitro-, electrolytic reduction of (ELBS and KOPF), A., i, 270.
 condensation of with $\alpha\delta$ -dibromopentane (SCHOLTZ and FRIEMEHLT), A., i, 541.
 estimation of, in paranitraniline (LIEBMANN), A., ii, 66.
- Anilinedisulphonic acid**, hydrogen potassium salt, and action of bromine on (BAGNALL), T., 281.
- Aniline oils and Aniline salt**, analysis of (LIEBMANN and STUDER), A., ii, 583.
- Aniline-Red**, *p*-nitro- (LIEBMANN), A., ii, 65.
- Anilinoacetamidoquinone** (KEHRMANN and BAHATRIAN), A., i, 31.
- Anilinoacetic acid**, nitroso-, and its phenylhydrazide (FISCHER), A., i, 349.
- γ -Anilinoacridine** (FISCHER and DEMELER), A., i, 635.
- 3-Anilino-2-aminophenylisonaphthaphenazonium chloride** (KEHRMANN and LEVY), A., i, 238.
- Anilinoaminoquinone** (KEHRMANN and BAHATRIAN), A., i, 31.
- Anilinobenzoic acid**. See Diphenylamine-*o*-carboxylic acid.
- Anilinobenzylacetoacetic acid oxime** and phenylhydrazone, ethylic salts (BERTINI), A., i, 896, 897.
- Anilinobenzylbenzylidenacetone** (BERTINI), A., i, 896.
- β -Anilino- α -carboxyglutaric acid**, tri-ethylic salt (GUTHZEIT and LASKA), A., i, 260.
- Anilinochloropropionitrile** (EIBNER), A., i, 41.
- Anilindibenzyl ketone anilide** (FRANCIS), T., 879.
- Anilindimethylacetoacetic acid**, ethylic salt (CONRAD and HOCK), A., i, 632.
- γ -Anilindimethylacetoacetic acid**, methylic salt (CONRAD and GAST), A., i, 258.
- Anilinohydroxyquinone** (KEHRMANN and BAHATRIAN), A., i, 31.
- Anilinohydroxyquinoneanilide**, nitro-, [1 : 2 : 6 : 4 : 5] (KEHRMANN and IZKOWSKA), A., i, 493.
- Anilinsonaphthaphenosaffranine**, and its piperidine and *m*-tolylenediamine derivatives (SCHAPOSCHNIKOFF), A., i, 432.
- Anilinsonaphthaquinonesulphonic acid**, aniline salt (GAESS), A., i, 375.
- Anilinopentane**, $\alpha\delta$ -*di-o*-nitro- (SCHOLTZ and FRIEMEHLT), A., i, 541.
- 3'-Anilino- β -phenotriazone** (KÖNIG and REISNER), A., i, 457.
- 2' : 4'-Anilino-3'-phenyldihydroquinazoline**, and 2'-Anilino-3'-phenyl-4'-ketotetrahydroquinazoline and its 1'-methyl derivative (MCCOX), A., i, 360.
- 3-Anilinophenylisonaphthaphenazonium chloride**, 2'-amino- (KEHRMANN and RAVINSON), A., i, 526.
- Anilinophenylaposafranine** (SCHAPOSCHNIKOFF), A., i, 432.
- α -Anilinopropionitrile**, *p*-chloro- and *p*-nitro- (EIBNER), A., i, 41.
- 2-Anilino-pyridine**, and methiodide, and methochloride (FISCHER, HOERGER, and JAEGER), A., i, 634.
- Animals**, presence of manganese in (PICHARD), A., ii, 40.
- Animal charcoal**, rate of filtration of water or alcohol through (HAUSSER), A., ii, 277.
 estimation of carbonic anhydride in (SCHENKE), A., ii, 809.
- Animal tissues**, estimation of fat in (NERKING), A., ii, 191; (KNOPFELMACHER), A., ii, 821.
- Anisaldehyde** (*o*-methoxybenzaldehyde), condensation of, with 2-acetyl-1-naphthol (KELLER and VON KOSTANECKI), A., i, 524.
 cyanhydrin, condensation product of, and its dibromo- and dinitro-derivatives (MINOVICI), A., i, 890.
 hydrazone (BOUVEAULT), A., i, 288.
- Anisaldime hydrochloride** (BUSCH and WOLFF), A., i, 951.
- p*-Anisamide**, *o*-chloro-, and *o*-bromo-, (GATTERMANN and RÖLOFSEN), A., i, 510.
- Anisamidine**, condensation of, with ethylic acetoacetate and acetylacetone (GABRIEL and COLMAN), A., i, 639.
- Anisic acid**, formation of (BOUVEAULT), A., i, 287.
dichloro- (BERTOZZI), A., i, 877.
- o*-Anisidine**, *p*-nitro-, and its acetyl derivative (MELDOLA), P., 1898, 226.
- p*-Anisidine**, *o*-bromo-, preparation of, and salts (BENEVENTO), A., i, 349.
- Anisil- α -osazone**, and **β -osazone** (BILTZ and WIENANDS), A., i, 910.
- Anisoil**, synthesis of (MOUREU), A., i, 495.
 absorption of argon by (BERTHELOT), A., ii, 653.
- o*- and *p*-Anisoilsulphinic acids** (GATTERMANN), A., i, 517.
 amides and anilides (GATTERMANN), A., i, 518.

- ab*-Anisoylbenzylthiocarbamide, *ab*-Anisoylethylthiocarbamide, *ab*-Anisoylethylurea, *ψn*-Anisoylethylurea, *ab*-Anisoylmethylthiocarbamide, *n*-Anisoyl-*v*-phenylbenzylthioureia, *ab*-Anisoylphenylthiocarbamide, Anisoylthiocarbimide, Anisoylthiohydantoin, Anisoylthioureia, Anisoylthiourethane, *ab*-Anisoyl-*o*- and *p*-tolylthiocarbamides (DIXON), T., 385—388; P., 1899, 53, 54.
- o*-Anisyldithiocarbazine acid (BUSCH and BEST), A., i, 955.
- o*-Anisyldithiodiazolonethiol and its disulphide (BUSCH and MÜNKER), A., i, 953.
- 2-Anisylideneacetyl-1-naphthol and its acetyl derivative (KELLER and VON KOSTANECKI), A., i, 524.
- p*-Anisylidenecoumaranone (HERSTEIN and VON KOSTANECKI), A., i, 370.
- Anisylidenediacetoacetic acid ethylic salt (KNOEVENAGEL and GOECKE), A., i, 215.
- Anisylidene-4-ethoxy-2-hydroxyacetophenone and acetyl derivative and dibromide (VON KOSTANECKI and OSIUS), A., i, 370.
- Anisylidene-2-hydroxyacetophenone and acetyl derivative and dibromide (HERSTEIN and VON KOSTANECKI), A., i, 369.
- Anisylidenemalonic acid, preparation of (KNOEVENAGEL), A., i, 145.
- ethylic salt (KNOEVENAGEL and GROSS), A., i, 117.
- Anisylidenepæonol, and its acetyl derivative (VON KOSTANECKI and OSIUS), A., i, 370.
- Anisyl methyl ketone (REYCHLER), A., i, 55.
- o*-Anisylmethylthiodiazolinethiol (BUSCH and BEST), A., i, 955.
- 2-Anisylmethylthiosemicarbazide (MARCKWALD), A., i, 505.
- o*-Anisylpentahydro-1:3:5-dithiodiazine, and hydrochloride and acetyl derivative (BUSCH and BEST), A., i, 955.
- 2-Anisylphenylthiosemicarbazide, (MARCKWALD), A., i, 505.
- Annabergite from Sicily (LA VALLE), A., ii, 495.
- Annual General Meeting, T., 1167; P., 1899, 77.
- Anorthoclase from the Transvaal (HENDERSON), A., ii, 111.
- Anthracene, formation of (KRCZMAŘ), A., i, 144; (MOUNEYRAT), A., i, 490.
- examination of, possible error in (BASSETT), A., ii, 815.
- Anthracite, origin of (COHEN), A., ii, 113.
- Anthragallol (1:2:3-Trihydroxy-anthraquinone) mono-potassium, sodium, barium, and calcium, salts of, and action of alcoholic potash on (PERKIN), T., 435; P., 1899, 65.
- ethylic ether (PERKIN), T., 446; P., 1899, 66.
- Anthranilic acid (*o*-aminobenzoic acid), products of the action of acetonitrile on (MATHEWS), A., i, 57.
- methyl salt, in oil of Neroli (WALBAUM), A., i, 620, 621; (E. and H. ERDMANN), A., i, 621.
- ethylic salt, hydrochloride and benzoyl derivative of (E. and H. ERDMANN), A., i, 621.
- Anthraphenone (LIPPMANN and FLEISSNER), A., i, 918.
- Anthrapurpurin, potassium derivative of (PERKIN), P., 1899, 65.
- Anthraquinone group of colouring matters, salts of (PERKIN), T., 435; P., 1899, 65.
- Anti-albumid, hydrolysis of, to form pigments (CHITTENDEN and ALBRO), A., i, 468.
- Antimony cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- Antimony alloys, with calcium (MOISSAN), A., ii, 153; (TARUGI), A., ii, 749.
- with lead and tin (STEAD), A., ii, 32, 33.
- Antimony salts, reduction of, by hypophosphorous acid and palladium (ENGEL), A., ii, 750.
- reduction of, with calcium carbide (TARUGI), A., ii, 749.
- Antimony trichloride, conductivity of solutions of, in various solvents, molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
- lead iodide (MOSNIER), A., ii, 222.
- trioxide, action of oxalic acid and alkali oxalates on (ROSENHEIM and BIERBRAUER), A., i, 570.
- alkaline solution of, action of, on metallic salt solutions (HARDING), A., ii, 490.
- Antimonic acids and pentoxide (SENDERENS), A., ii, 557.
- trisulphide, analysis of (KITZING), A., ii, 525.
- separation of lead sulphide from (MOYER), A., ii, 697.
- pentasulphide (KLENKER), A., ii, 490, 557.

- Antimony** potassium, sodium, and ammonium sulphates (GUTMAN), A., ii, 33, 34.
- Antimony organic compounds** :—
- Antimonylcatechol acetate and fluoride** (CAUSSE), A., i, 362.
- Antimonylgallic acid hydroxide, and its salts** (CAUSSE), A., i, 362.
- Antimonypyrogallol hydroxide, and its salts** (CAUSSE), A., i, 362.
- Antimony, detection, estimation, and separation of** :—
- detection of (DUCOMMUN), A., ii, 338.
- estimation of, in alloy, with tin (FRAENKEL), A., ii, 524.
- estimation of, in presence of copper, lead, and phosphorus (FRAENKEL), A., ii, 524.
- estimation of arsenic in (DUCRU), A., ii, 124.
- estimation of tin in (PATTINSON and PATTINSON), A., ii, 62.
- separation of bismuth, cadmium, copper, lead, and silver from (ATKINSON), A., ii, 615.
- separation of copper from (LUCAS), A., ii, 523.
- separation of mercury from (JANNASCH and DEVIN), A., ii, 59.
- separation of tin from (BORNEMANN), A., ii, 615.
- Antipeptone**, constituents of (KUTSCHER), A., i, 179.
- properties and purification of (SIEGFRIED), A., i, 784.
- Antipyrine** (1-phenyldimethylpyrazolone), velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- action of iodine on (BOUGAULT), A., ii, 193.
- double salicylates of metals and (SCHUYTEN), A., i, 306.
- estimation of (BOUGAULT), A., ii, 193.
- Antipyrine chloropyrazole** (MICHAELIS and RÖHMER), A., i, 233.
- Antitoxin** of snake venom, mode of action of (MARTIN), A., ii, 782.
- Antitoxins**, mode of action of (COBBETT), A., ii, 680.
- cause of physiological antagonism of, to toxins (MARTIN and CHERRY), A., ii, 234.
- Apatite**, solubility of, in water, and in water saturated with carbon dioxide (JOFFRE), A., ii, 420.
- Apigenin**, action of potassium acetate on (FERKIN), T., 441 ; P., 1899, 66.
- Apiole**, specific heat, heat of fusion, and velocity of crystallisation of (TAMMANN), A., ii, 549.
- Aplysiopurpurin**, separation from *Aplysia punctata*, and properties of (MACMUNN), A., ii, 313.
- Apophyllite**, from Minnesota (BERKEY), A., ii, 371.
- Aquilegia vulgaris*, distribution of hydrocyanic acid in (HÉBERT), A., ii, 378.
- Arabic acid**, from gum of opoponax (TSCHIRCH and KNITL), A., i, 714.
- Arabinose** from the hydrolysis of gentian-root pectin (BOURQUELOT and HÉRISSEY), A., i, 93.
- oxidation of, by hydrogen peroxide ; also hydrazine and osazone (MORRELL and CROFTS), T., 790 ; P., 1899, 99.
- oxidation of, by sorbose bacterium (BERTRAND), A., ii, 170.
- estimation of mannose in presence of (BOURQUELOT and HÉRISSEY), A., ii, 817.
- d*- and *r*-**Arabinose**, reduction and oxidation of (RUFF), A., i, 324.
- Arabitol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- d*- and *r*-**Arabitol** and *d*- and *r*-**Arabonic acids** and their lactones (RUFF), A., i, 324.
- Arachidic acid**, amount of, in rape and mustard oils (ARCHBUTT), A., ii, 340.
- metabolism of, in earth-nuts during germination (MAQUENNE), A., ii, 171.
- estimation of, in earth-nut oil (ARCHBUTT), A., ii, 260.
- Arachis*, seeds of. See Agricultural chemistry.
- Arachis oil**, detection of, in olive oil (VIERTH), A., ii, 583.
- Arbacin**, reactions of (BANG), A., i, 836.
- Arbutin**, action of moulds on (PURIEWITSCH), A., ii, 683.
- Archil**, use of, in alkalimetry (GLASER), A., ii, 573.
- Argentite** from Sardinia (TRAVERSO), A., ii, 760.
- Arginine**, purification of, and its *di*-benzoyl and other derivatives (GULEWITSCH), A., i, 833.
- hydrolysis of, and constitution (SCHULZE and WINTERSTEIN), A., i, 107.
- a proteid compound of (SUSUKI), A., ii, 793.
- Argols**, estimation of tartaric acid in (ECKSTEIN ; SCHÄFER), A., ii, 70.
- Argon** in a cerium mineral from the Caucasus (TSCHERNIK), A., ii, 669.
- in helium from samarskite and cleveite (RAMSAY and TRAVERS), A., ii, 22.

- Argon**, nature of (BRAUNER), A., ii, 360.
 position of, in the periodic system (BROOKES), A., ii, 552; (PICCINI), A., ii, 645; (HOWE), A., ii, 740.
 molecular weight of (BERTHELOT), A., ii, 207.
 preparation of (RAMSAY), A., ii, 211.
 preparation, density and refraction of (RAMSAY and TRAVERS), A., ii, 746.
 density of (RAMSAY), A., ii, 745.
 diffusion of, through caoutchouc membrane (KISTIAKOWSKI), A., ii, 730.
 mixture of, with carbon disulphide, effect of silent electric discharge on (BERTHELOT), A., ii, 648.
 absorption of, by organic compounds, under influence of silent electric discharge (BERTHELOT), A., ii, 653.
 action of, on mercury dimethyl and mercury diphenyl (BERTHELOT), A., i, 471.
- Aroidæe**, absence of hydrocyanic acid in (HÉBERT), A., ii, 377.
- Aromatic allylic and propenyl ethers** (MOUREU), A., i, 427.
- Arsenic**, mirror and yellow, formation of (LINCK), A., ii, 416.
 cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.
 action of, on sulphuric acid (ADIE), P., 1899, 133.
 action of, on bone marrow and blood (STOCKMAN and GREIG), A., ii, 167.
 compound of, with calcium (MOISSAN), A., ii, 153.
- Arsenic alloys**, with tin (STEAD), A., ii, 33.
- Arsenic salts**, reduction of, by calcium carbide (TARUGI), A., ii, 749.
- Arsenic trichloride**, conductivity of salt solutions in; molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
 lead iodide (MOSNIER), A., ii, 222.
 mercuride. See Mercury arsenide.
 trihydride, preparation of (SAUNDERS), A., ii, 286.
 trioxide. See Agricultural chemistry.
- Arsenious acid**, electrolytic oxidation of (TOMMASI), A., ii, 138.
- Arsenic acid**, action of, on algæ (BOUILHAC), A., ii, 238.
- Thioxyarsenic acids**, mono- and di-, preparation of (MCCAY), A., ii, 745.
 compounds of, with oxygen, sulphur, selenium, and tellurium (SZARVASY and MESSINGER), T., 597; P., 1899, 123.
 compound of, with sodium and ammonia (HUGOT), A., ii, 151.
- Arsenic trisulphide**, colloidal solutions of, coagulation of, by zinc chloride (STARK), A., ii, 644.
 separation of lead sulphide from (MOYER), A., ii, 697.
 thallium sulphide (LOCZKA), A., ii, 100.
 Octarsenotritelluride (SZARVASY and MESSINGER), T., 598; P., 1899, 123.
- Arsenic, detection, estimation, and separation of** :—
 detection of (DUCOMMUN), A., ii, 338.
 detection of, in carpets (RÖSSLER), A., ii, 530.
 detection of, in coal-tar colours (ORTMANN), A., ii, 181.
 estimation of (PATTINSON and PATTINSON), A., ii, 56.
 estimation of, in antimony and other metals (DUCRU), A., ii, 124.
 estimation of, in glycerol (BENNETT), A., ii, 519.
 estimation of, in ores (BENNETT), A., ii, 519.
 separation of copper from (REMY), A., ii, 127.
 separation of cadmium, cobalt, copper, lead, and silver from (ATKINSON), A., ii, 615.
 separation of mercury from (JANNASCH and DEVIN), A., ii, 59.
- Arsenides**, preparation of (GRANGER), A., ii, 211.
- Artichokes**. See Agricultural chemistry.
- Artolin** from wheat-gluten, and its hydrochloride (MORISHIMA), A., i, 466.
- Arzrunite** from Chili (ARZRUNI, THADDEEFF and DANNENBERG), A., ii, 562, 563.
- Asarone**. See 1:2:4:5-Trimethoxypropenylbenzene.
- Asarylic aldehyde** (GATTERMANN and EGGERS), A., i, 347.
- Asbestos** from Canada and South Africa (KERSTING), A., ii, 765.
 from Lombardy (BRUGNATELLI), A., ii, 372.
 filter (GOSKE), A., ii, 16; (LOHSE), A., ii, 801.
- Asbolane** from Sicily (LA VALLE), A., ii, 495.
- Asbolite** from New South Wales (JAQUET), A., ii, 162.
- Ashes**, estimation of calcium and magnesium in (HAYWOOD), A., ii, 612.
- Asparagine**, presence of, in the broad-bean (BOURQUELOT and HÉRISSEY), A., ii, 325.
 formation of, in plants (SCHULZE), A., ii, 240.
 configuration of (WALDEN), A., ii, 539.

- Asparagine**, action of formaldehyde on (SCHIFF), A., i, 870.
influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.
See also Agricultural chemistry.
- Aspartic acid** (*aminosuccinic acid*), presence of, in antipeptone (KUTSCHER), A., i, 179.
configuration of (WALDEN), A., ii, 539.
- Aspergillus niger***, composition of (MAR-SCHALL), A., ii, 44.
the respiratory quotient of, in nutrient media (PURIEWITSCH), A., ii, 785.
the fungose of, and yield of chitin (TANRET), A., ii, 171.
- Asphalt** from U.S.A. (TAFF), A., ii, 756.
artificial production of (DAY), A., ii, 559.
analysis of (PECKHAM), A., ii, 63.
estimation of sulphur in (HERTING), A., ii, 804.
- Aspidiophylls**, presence of, in *Aspidium filix femina* (ETARD), A., ii, 792.
Aspidium filix mas, constituents of oil from rhizome of (KATZ), A., ii, 324.
- Aspirator**, automatic glass valve for (ROSENHEIM), A., ii, 552.
- Aspirin** (*acetylsalicylic acid*), physiological action of (DRESER), A., ii, 605.
- Association**. See Affinity, chemical.
- Asterium**, spectrum of (LOCKYER), A., ii, 4.
- Asymmetry**, product of, and maximum rotation of ethereal salts (FRANKLAND), T., 351.
- Atmospheric air**, ionic charges produced in, by Röntgen rays (TOWNSEND), A., ii, 730.
depression of freezing point of water by dissolved (RAOULT), A., ii, 203.
viscosity of (BREITENBACH), A., ii, 403.
vapour pressure of, at the temperature of boiling hydrogen (DEWAR), A., ii, 741.
compressibility of (BERTHELOT and SACERDOTE), A., ii, 404.
compressed, pump for preparing (BOURET and BERLEMONT), A., ii, 413.
solution of bromine in (VILLARD), A., ii, 143.
liquid, sp. gr. and composition of (LADENBURG and KRÜGEL), A., ii, 208.
manufacture of (LINDE), A., ii, 414.
chlorides and iodine in (GAUTIER), A., ii, 592, 593.
carbon dioxide in, at different altitudes (DE THIERRY), A., ii, 653.
carbon dioxide in, and the oxidation of organic matter contained in (LÉVY and HENRIET), A., ii, 94.
- Atmospheric air**, presence of hydrogen in (GAUTIER), A., ii, 149.
estimation of traces of hydrogen sulphide in (LEHMANN), A., ii, 53.
- Atomic theory**, origin of Dalton's (DEBUS), A., ii, 645; (KAHLBAUM), A., ii, 740.
- Atomic weight** of argon (BERTHELOT), A., ii, 207.
of carbon (DEWAR), P., 1898, 175; (BERTHELOT), A., ii, 207.
of chlorine (BERTHELOT), A., ii, 207.
of cobalt (RICHARDS and BAXTER), A., ii, 753.
of hydrogen (DEWAR), P., 1898, 175; (LEDUC), A., ii, 475, 729.
of nickel (RICHARDS and CUSHMAN), A., ii, 488.
of nitrogen (DEAN; DEWAR), P., 1898, 174; (BERTHELOT), A., ii, 207.
of oxygen (DEWAR), P., 1898, 175; (KEISER), A., ii, 88; (LEDUC), A., ii, 475.
of praseodymium and neodymium (JONES), A., ii, 292.
of selenium (LENHER), A., ii, 18.
of silver, and of sulphur (BERTHELOT), A., ii, 207.
of tellurium (WILDE), A., ii, 148.
of tungsten (THOMAS), A., ii, 489.
of victorium (CROOKES), A., ii, 751.
- Atomic weights**, recalculation of, by the method of limiting density (BERTHELOT), A., ii, 207.
table of (LANDOLT, OSTWALD, and SEUBERT), A., ii, 86.
- Atranoric acid** from various lichens (ZOFF), A., i, 717.
- Atranorin**, presence of, in various lichens (HESSE), A., i, 381—386.
- Atropine**, occurrence and chemistry of (PINNER), A., i, 178.
action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
enneaiodide, and *mono*- and *di*-hydriodide mercuric iodides (PRESCOTT), A., i, 89.
- apo-Atropine**, chemistry of (PINNER), A., i, 178.
- Atropine alkaloids**, absence of scopolamine from (MERCK), A., i, 91.
- Atroscine** (*atrascine*, *i*-scopolamine, *inactive hyosicine*), occurrence and chemistry of (PINNER), A., i, 178.
(Hesse), identity of, with *i*-scopolamine (GADAMER), A., i, 91; (MERCK), A., i, 91.
- Auerbachite** from Russia (JEREMEEFF), A., ii, 673.
- Augite**, from Rhön Mountains (SEY-FRIED), A., ii, 162.
artificial (MOROZEWICZ), A., ii, 763.

Augite and hornblende, intergrowth of, from Colorado (EAKINS), A., ii, 564.

Auramine, formation of (WEINMANN), A., i, 204.

constitution of (GRAEBE), A., i, 702.

"**Auxochrome**" groups and derivatives (KAUFFMANN), A., ii, 464.

Azaurolic acid, from reduction of ethylnitrolic acid and its erythro-salts (GRAUL and HANTZSCH), A., i, 188.

Azelaic acid and potassium salts, thermochemistry of (MASSOL), A., ii, 353.
action of soda-lime on (MILLER and TSCHITSCHKIN), A., i, 789.

ethylic salt (MILLER), A., i, 791.

Azelaone (cyclooctanone) (MILLER and TSCHITSCHKIN), A., i, 789.

Azinecarbonic acid, methylic salt (THIELE), A., i, 171.

***o*-Azaoanisole** (STARKE), A., i, 589.

Azobenzene, depression of freezing point of dibenzyl by; cryoscopic behaviour of, in benzyaniline solution (GARRELLI and CALZOLARI), A., ii, 732.

osmotic pressure of ethereal solutions of (GOODWIN and BURGERS), A., ii, 273.

action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 473.

action of substituents on (ARMSTRONG), P., 1899, 176.

hydrobromide, *p*-amino- (BISCHOFF and PUREWITSCH), A., i, 231.

Azobenzene-*p*-carboxylic acid, methylic and ethylic salts (JACOBSON and STEINBRENN), A., i, 276.

Azo-compounds, rate of formation of, in presence of various acids (GOLDSCHMIDT and BÜCKLE), A., ii, 276.

Azo-compounds. See preceding entries, and also :—

Acetalazinetetrasulphonic acid.

Acetoxybenzeneazohydroxyphenylmethylbenzoxazole.

Allophanazide.

Allophanylazobutyronitrile.

p-Aminoazobenzenehydrobromide.

Azotriazole.

p-Azoxyanisole.

Azoxybenzene.

Azoxyphenetole.

Benzaldehydine-azophenol.

Benzamidoazoresorcinol.

Benzenazoacetic acid.

Benzenazoacetoacetic acid.

Benzenazodimethylindazole.

Benzenazodiphenylimidocarbamide.

Benzenazo-*p*-ethoxybenzenazophenol.

Benzenazohydroxydimethylbenzoxazole.

Azo-compounds. See :—

Benzenazoxyhydroxymethylbenzoxazole.

Benzenazoxyhydroxyphenylmethylbenzoxazole.

3'-Benzenazindazole.

Benzenazo-*p*-methoxybenzenazophenol.

Benzenazomethylphloroglucinolazobenzene.

Benzenazophenol.

Benzenazostyrene.

Benzenylazoxime.

Benzoilazobenzene.

Benzoxyloxybenzenazoxyhydroxyphenylmethylbenzoxazole.

Bisethylicacetoacetateazodiphenyldicarboxylic acid.

Bisphenolazodiphenyldicarboxylic acid.

iso-Butaldazine.

iso-Butylideneazine.

Butyramidoazobenzene.

Diazoacetic acid.

Diazoacetone.

Diazoaminopyridine.

Diazoaminopyridine.

Diazoamine.

iso-Diazobenzene-sodium.

Diazobenzenesulphonic acid.

Diazobenzoic acid.

Diazodimethylindazole hydroxide.

Diazoethane.

Diazoguanidine.

Diazoindazole hydroxide.

Diazomethane.

Diazosulphanilic acid.

Diazotates.

Diazotolueneimide.

Diazotriazolecarboxylic acid.

Diazo-uracils.

Diazo-urethanes.

Diazo-xyleneimide.

Dibenzylazoxime.

Diethylaminophenylcyanazomethinephenyl.

Diethyl-*o*-phenetidineazobenzene.

Digallacylosazone.

Dimethylaminophenylcyanazomethinephenyl.

Dimethylindazoleazo-*β*-naphthol.

Dimethyltolueneazammonium silver iodide.

Diphenyltriazine.

Disazo-dyes.

Guanazylmethane.

Guanidinecarboxylazide.

Hydrazobenzene.

Hydroxyazobenzene.

Hydroxybenzylideneazine.

α-Hydroxyisobutyramidoazobenzene.

Indazoleazo-*β*-naphthol.

- Azo-compounds.** See :—
 Indazolylazodimethylaniline.
 Indazolyazo- β -naphthol.
 Mesitylazodimethylindazole.
 Methoxybenzeneazophenol.
p-Methoxybenzeneazophenylmethylbenzoxazole.
 β -Methyladipic acid, azide of.
 Methylazimino-xylene.
 Methylnitrosaminotolueneazonaphthylamine.
 Methylnitrosamino-*s*-xyleneazo- β -naphthylamine.
 Methyltriazoleazodimethylaniline.
 Methyltriazoleazo- β -naphthylamine.
 6-Naphtholazo-dyes.
 Naphthoylazomethylene.
 Phenanthrazine.
 Phenylaziminobenzenes.
 Phenylazochromotropic acid.
 Phenylazoethane.
 Phenylazoglutaconic acid.
 Phenylazopentane.
 Phenylazopropane.
 Phenylazo-xylene.
 Phenylmethylbenzeneazo-5-pyrazol-one.
 Picrylazo- α -xylene.
 Propionamidoazobenzene.
 Pyridineazoresorcinol.
 Saloloxyposphazophenyl.
 Tetrazodianisyl.
 Tetrazodianisylsulphonic acid.
 Tetrazodiphenyldicarboxylic acid.
 3'-*o*-Tolueneazoinadazole.
 Toly- ψ -aziminobenzene.
 Triazoleazodimethylaniline.
 Trimethylbenzimidazoleazonnaphthylamine.
iso-Valeramidoazobenzene.
 3'-*m*-Xylene-*p*-azo-3-methylindazole.
 Xyl- ψ -aziminobenzene.
 Xylazobenzene.
- Azodicarbonanilide** (CURTIUS and BURKHARDT), A., i, 137.
- Azoimide**, preparation of (CURTIUS and RISSOM), A., ii, 90; (SABANÉEFF and DENGIN), A., ii, 365; (TANATAR), A., ii, 479.
- Azonium bases**, properties of (SCHAPOSCHNIKOFF), A., i, 431.
 compounds from benzil (KEHRMANN and NATCHEFF), A., i, 81.
- Azotetrazole**, derivatives of (THIELE), A., i, 170.
- p*-Azotoluene**, formation of (LÖB), A., i, 123.
m-diamino-, melting points of (ELBS and SCHWARZ), A., i, 270.
- Azotriazole** (THIELE and MANCHOT), A., i, 168.
- o*-Azoxyanisole** (STARKE), A., i, 589.
- p*-Azoxyanisole**, specific inductive capacity of, in liquid and crystalline-liquid state (ABEGG and SETZ), A., ii, 623.
 heat of transition of, from crystalline-liquid to isotropic form, and critical point of (HULETT), A., ii, 468.
 transition temperature of, and influence of benzophenone on; solutions of *p*-azoxyphenetol in (SCHENCK and SCHNEIDER), A., ii, 637.
 transition point of (SCHENCK), A., ii, 360.
- Azoxybenzene**, formation of (BAMBERGER and TSCHIRNER), A., i, 348; (FISCHER), A., i, 349.
 constitution of (LACHMANN), A., i, 588.
- Azoxybenzene**, *p*-dichloro- (BAMBERGER, BÜSDORF, and SZOLAYSKI), A., i, 341.
 dinitro- (STEGE), A., i, 745.
- p*-Azoxyphenetol**, heat of transition of, from crystalline-liquid to isotropic form, and critical point of (HULETT), A., ii, 468.
 solutions of, in azoxyanisole, melting points of (SCHENCK and SCHNEIDER), A., ii, 637.

B.

- Bacillus cholerae*, *B. coli communis*, and Eberth's bacillus, action of, on dextrose and on biliverdin, bilirubin, and hæmoglobin (HUGOUNENQ and DOYON), A., ii, 376, 377.
- coli communis*, secretion of a colour-forming oxydase by (ROUX), A., ii, 444.
- diphtheritidis* and Löffler's bacillus, failure of Outchinsky's experiment with (HUGOUNENQ and DOYON), A., ii, 377.
- Ellenbachensis* preparation (alinite), manurial action of, on cereals (MALPEAUX), A., ii, 242.
- lactis aërogenes*, action of, on malic acid (EMMERLING), A., ii, 569.
- tetanus* solutions, molecular relations of (RUPPEL and RANSOM), A., ii, 443.
- tuberculosis*, the chemistry of (RUPPEL), A., ii, 237.
 and *B. typhosus* extracts, presence of a proteolytic enzyme in (GERET and HAHN), A., i, 95.
- Bacteria**, action of, on cement (STUTZER and HARTLEB), A., ii, 505; (BARTH), A., ii, 606.

- Bacteria**, action of ferric sulphate on (MÜLLER), A., ii, 506.
 production of fluorescent pigments by (JORDAN), A., ii, 318.
 solution of fibrin by, in presence of chloroform (SALKOWSKI), A., i, 724.
 action of leucocytes on (HARDY), A., ii, 165.
 associated with algæ, fixation of nitrogen by (BOUILLAC), A., ii, 238.
 denitrifying, classification of, and action on various classes of chemical compounds (AMPOLA and ULPANI), A., ii, 444.
 nodule, physiology of (DAWSON), A., ii, 735.
 influence of sucrose on (GOLDING), A., ii, 689.
 pathogenic, chemical activity of (HUGONENQ and DOYON), A., ii, 376.
 in water, action of ozone on (MARMIER and ABRAHAM), A., ii, 506.
 sulphur (HARTLEY), A., ii, 437.
 toxic action of ethereal oils, aldehydes, and acids on (BOKORNY), A., ii, 318, 786.
- Bacterium aceti*, *B. xylinum*, *B. rancens*, and *B. Pasteurianum*, inverting and reducing power of (HOYER), A., ii, 784.
denitrificans V., action of, on metallic and organic nitrites (AMPOLA and ULPANI), A., ii, 444.
 of erysipelas and of swine fever, action of ferric sulphate on (MÜLLER), A., ii, 506.
 sorbose-, action of, on xylose in yeast extract (BERTRAND), A., ii, 44.
 oxidation of aldoses by (BERTRAND), A., ii, 170.
 oxidative power of, and growth in beer (EMMERLING), A., ii, 318.
- Baddeleyite** ("favas") from Brazil (HUSSAK), A., 432.
- Baddeckite** from Nova Scotia (HOFFMANN), A., ii, 110.
- Bovomyces roseus*, constituents of (HESSE), A., i, 384.
- Balance Sheet** of the Chemical Society, March, 1899, and of the Research Fund, March, 1899. See Annual General Meeting, T., 1167.
- Balm**, oil of. See Melissa, oil of.
- Balsam**, Peru, composition of (THOMS), A., i, 715.
- Barbaloin**, number of hydroxyl groups in (LÉGER), A., i, 157.
 distinction of, from nataloins (LÉGER), A., i, 821.
- Barbaloin**, trichloro-, and triacetyl- and tribenzoyl derivatives, and identity of tribromobarbaloin with tribromoiso-barbaloin (LÉGER), A., i, 157.
- iso-Barbaloin*, and its tribromo-, trichloro-, triacetyltrichloro-, and dibenzoyl derivatives (LÉGER), A., i, 157.
- Barbarea prœcox*, glucoside and essential oil of (GADAMER), A., i, 930.
- Barbatic acid** from *Clectoria ochroleuca* (ZOFF), A., i, 716.
- Barbituric acid**, nitroso- (*violuric acid*), (HANTZSCH), A., i, 400; (GUICHARD), A., i, 781.
- Barium**, occurrence of, in plants and soils (HORNBERGER), A., ii, 506.
 solution of, in mercury (SCHOELLER), A., ii, 347.
 compounds in artesian well water (WHITE), A., ii, 420.
- Barium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- Barium antimonate** (SENDERENS), A., ii, 557.
 arsenide, preparation of (LEBEAU), A., ii, 655.
 azoimide (CURTIUS and RISSOM), A., ii, 92.
 carbonate, reduction of, by aluminium (FRANCK), A., ii, 103.
 chloride, electrolysis of aqueous solutions of (BISCHOFF and FOERSTEB), A., ii, 89.
 thermal change on diluting saturated solutions (POLLOK), P., 1899, 8.
 dehydration of (RICHARDS), A., ii, 8.
 absorption of water by, and hydrates of (BUSNIKOFF), A., ii, 409.
 partition of water between sulphuric acid and (BUSNIKOFF), A., ii, 361.
 uranium chloride and bromide (ALOY), A., ii, 556.
 hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 transition temperature of (RICHARDS and BRIGGS), A., ii, 355.
 removal of calcium and magnesium salts from natural waters by (GRIFFIN), A., ii, 655.
 manganic iodate (BERG), A., ii, 426.
 iodide, action of, on silver nitrate dissolved in pyridine (NAUMANN), A., ii, 423.
 lead iodide (MOSNIER), A., ii, 222.
 molybdiolate (CHRETIEN), A., ii, 363.
 copper thallium and nickel thallium nitrites (PRZIBYLLA), A., ii, 223.
 rhodium nitrite, and dodecarhodate (JOLY and LEIDIE), A., ii, 34.
 hyponitrite, and hyponitrosoacetate (DIVERS), T., 117; P., 1898, 224.

- Barium dihydrogen phosphate**, decomposition of, by water at 100° (VIARD), A., ii, 26.
sulphate in sandstones (CLOWES), A., ii, 761.
sulphide, phosphorescence of (MOURRELO), A., ii, 420.
perantantate (MELIKOFF and PISSARJEWSKY), A., ii, 491.
tetratingstate, reduction of (GRANGER), A., ii, 32.
hexatungstoperiodate (ROSENHEIM and LIEBKNECHT), A., ii, 744.
peruranate, action of carbonic anhydride on (MELIKOFF and PISSARJEWSKY), A., ii, 31.
- Barium organic compounds** :—
isobutylic sulphate, decomposition of (BIRON), A., i, 408.
platinocyanide, preparation of (BERGSÖE), A., i, 320.
- Barium, estimation and separation of** :—
 estimation of, in presence of calcium and strontium (KNOBLOCH), A., ii, 182.
 separation of selenium from (JANNASCH and MÜLLER), A., ii, 60.
 separation of, from strontium and calcium in mixed sulphates, theory of (MORGAN), A., ii, 627.
- Barley**. See Agricultural chemistry.
- Barytes from the Odenwald** (KRAATZ-KOSCHLAU), A., ii, 302.
- Barytocoelastine from Ontario** (VOLNEY), A., ii, 495.
- Basalt from Antarctic regions** (PRIOR), A., ii, 436.
 from Franz Josef Land (NEWTON and TEALL), A., ii, 163.
- Basalt-glass**. See Tachylite.
- Basanite, leucite**, from Vesuvius (BECKE), A., ii, 500.
- Base**, $C_8H_8ON_4$, from reduction of aminoguanidineglyoxylic acid, and its nitrate (THIELE and DRALLE), A., i, 7.
 $C_7H_{12}N_4$, from the action of acetylacetone on aminoguanidine hydrochloride, and its hydrochloride and nitrate (THIELE and DRALLE), A., i, 8.
 $(C_9H_{12}NO)_x$, from reduction of ω -2-dinitromesitylene (BAMBERGER and WEILER), A., i, 124.
 $C_{10}H_{16}ON$, from carvone tribromide and ammonia (WALLACH), A., i, 531.
 $C_{10}H_{12}N$, from isolauronyl methyl ketoxime, hydrochloride, platinochloride (BLANC), A., i, 925.
 $C_{18}H_{22}NO_4$, isomeric with cocethyline, presence of, in cocaine (SKRAUP), A., i, 963.
- Base obtained by reducing ω -2-dinitromesitylene** (BAMBERGER and WEILER), A., i, 124.
- Bases**, energy of some (CARRARA and ROSSI), A., ii, 358.
 volume changes on mixing equivalent quantities of acids with, in methylic alcohol (MINOZZI), A., ii, 642.
 excretion of, in the urine of fasting rabbits (KATSUYAMA), A., ii, 314.
 organic, action of urethane on (MANUELLI and RICCA-ROSELLINI), A., i, 887.
 aromatic, behaviour of, towards ethereal salts of α -bromo-acids (BISCHOFF), A., i, 202.
 pseudo- (HANTZSCH), A., i, 400.
 tertiary, action of hydrogen peroxide on (WOLFFENSTEIN; BAMBERGER), A., i, 495.
- Basic slag**. See Slag, basic, and also Agricultural Chemistry.
- Basil**, oil of, composition of (DUPONT and GUERLAIN), A., i, 440.
- Bassorin**, amount of, in opoponax (TSCHIRCH), A., i, 714.
- Bastnäsite from Colorado** (HILLEBRAND), A., ii, 301.
- Bauxite**, formation of (BAUER), A., ii, 565.
- Beans**. See Agricultural chemistry.
- Bebeerine (bebirine)**, identity of pelosine with (SCHOLTZ), A., i, 651.
 decomposition products of, and action of α -xylylenic bromide (SCHOLTZ), A., i, 92.
- Beer**, influence of the mineral constituents of water on (LOTT), A., ii, 683.
 the nitrogen compounds in, and their separation (LASZCZYNSKI), A., ii, 793.
 growth of sorbose bacterium in (EMMERLING), A., ii, 318.
 detection of salicylic acid in (ABRAHAM), A., ii, 341.
- Beeswax**. See Wax.
- Beet-diastase and Beet invertase** (GONNEMANN), A., ii, 792.
- Beetroot**. See Agricultural chemistry.
- Beetroot-resin acid** (ANDRLEK and VOTOČEK), A., i, 157.
- Beggiatoa**, iodine in (GAUTIER), A., ii, 649.
- Belladonna**, root and leaves, the oxydase of (LÉPINOIS), A., i, 653.
- Belladonnine**, chemistry of (PINNER), A., i, 178.
- Benzacoline**, physiological action of (CASH and DUNSTAN), A., ii, 42.
- Benzaldehyde**, formation of (MORITZ and WOLFFENSTEIN), A., i, 424.

- Benzaldehyde**, synthesis of (MEISSEL), A., i, 880.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 absorption of argon by (BERTHELOT), A., ii, 653.
 action of sodium hydroxide, methoxide or benzyloxide on (KOHN and TRANTOM), T., 1155; P., 1899, 194.
 behaviour of, towards fused alkali nitrates (NÄGELI), A., i, 916.
 condensation of, with polyhydric alcohols (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 661.
 condensation of, with anhydracetone benzil, α -anhydrobenzillævulic acid, anhydracetonebenzil- β -carboxylic acid, and acetonebenzil (JAPP and FINDLAY), T., 1023; P., 1899, 164.
 condensation of, with benzylic cyanide (HENZE), A., i, 218.
 condensation of, with isobutaldehyde (STRITAR), A., i, 889.
 condensation of, with cinnamaldehyde, phenylisocrotonic acid, phthalic anhydride, and pyrocinchonic anhydride (THIELE), A., i, 216.
 decomposition of ammonium chloride by (DELEPINE), A., i, 187.
 cyanhydrin, condensation product of, and bromo- and nitro-derivatives (MINOVICI), A., i, 890.
 and *p*-chloro-*m*-nitro- diacetates (FREYSS), A., i, 875.
Benzaldehyde, nitro-, condensation of gallacetophenone (RUPE and LEONTÉFF), A., i, 371.
Benzaldehydephenylhydrazone, conversion of, into α -benzilozazone (BILTZ), A., i, 502.
Benzaldehyde-*m*-nitrophenylhydrazone, *o*-nitro-, *m*-nitro-, and *p*-nitro- (ROUGY), A., i, 752.
Benzaldehyde-*p*-nitrophenylhydrazone, and *m*-nitro- and *p*-nitro- (HYDE), A., i, 689.
Benzaldehydine, amino-, diamino-, and triamino-, salts and acetyl derivatives (PINNOW and WISKOTT), A., i, 500, 501.
 nitro-. See Phenylbenzylbenzimidazole, nitro-.
Benzaldehydineazophenol (PINNOW and WISKOTT), A., i, 500.
Benzaldine, *m*-nitro-, hydrochloride of (BUSCH and WOLFF), A., i, 951.
Benzaldoxime, stereoisomeric forms of (BANCROFT), A., ii, 145, 411; (CAMERON), A., ii, 411.
o-chloro- (WERNER and BLOCH), A., i, 753.
Benzamide, preparation of, from benzimidoxydiphenylacetic acid and from triphenyloxazolone (JAPP and FINDLAY), T., 1030; P., 1899, 165.
 formation of, from benzimidoethylic ether (WHEELER and JOHNSON), A., i, 431.
 oxidation of (OECHSNER DE CONINCK and COMBE), A., i, 347; (OECHSNER DE CONINCK), A., i, 244, 509.
 mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
di-o-substituted, hydrolysis of (LLOYD and SUDBOROUGH), T., 581.
Benzamides, chloro-, bromo-, iodo-, nitro-, and amino-, hydrolysis of (REID), A., i, 507, 508.
Benzamidine hydrochloride, action of, on ethylic phenylpropiolate (RUHEMANN and CUNNINGTON), T., 959; P., 1899, 185.
Benzamidoacetic acid. See Hippuric acid.
Benzamidoazoresorcinol (BAMBERGER and VON GOLDBERGER), A., i, 170.
Benzamidobenzoic acids (LIMPRICHT), A., i, 292.
o-**Benzamidodimethylaniline** (BAMBERGER and TSCHIRNER), A., i, 683.
2-Benzamido-3:5-dimethylbenzald-oxime benzoate (BAMBERGER and WEILER), A., i, 123.
Benzamidodimethylbenzophenone (DRAWERT), A., i, 642.
4-Benzamidoethenyl-1:2-naphthylene-diamine, hydrochloride, sulphate, picrate (MELDOLA and PHILLIPS), T., 1015; P., 1899, 187.
Benzamidoindazole (BAMBERGER and VON GOLDBERGER), A., i, 545.
Benzamidomethylbenzophenone (HANSCHKE), A., i, 775, 776.
3-Benzamidomethylcyclopentane (MARKOWNIKOFF), A., i, 799.
Benzamidomethyltriazole (THIELE and MANCHOT), A., i, 167.
 β -*o*-**Benzamidophenylbenzimidazole** (VON NIEMENTOWSKI), A., i, 645.
 β -**Benzamido-*p*-tolylbenzimidazole** (VON NIEMENTOWSKI), A., i, 645.
Benzanilide, action of sulphonating agents on (ARMSTRONG), P., 1899, 173.
 thio- (BAMBERGER), A., i, 694.
Benzazide, *m*-bromo- and *p*-bromo- (CURTIUS and PORTNER), A., i, 136.
Benzazimide. See 4'-Hydroxy- β -phenotriazine.
Benzene, constitution of (BRÜHL; THIELE), A., i, 873.
 physical constants of (YOUNG and FORTEY), T., 880.

Benzene, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.

latent heat of fusion of, influence of pressure on (HULETT), A., ii, 469.

boiling points of mixtures of, with alcohol (THAYER), A., ii, 140.

vapour pressures of solutions of, in carbon tetrachloride (LEHFELDT), A., ii, 633.

mixtures of, with toluene, carbon tetrachloride or alcohol, vapour pressures of (LEHFELDT), A., ii, 11. and carbon disulphide, composition of mixed vapours of (CARVETH), A., ii, 467.

mixtures of, with toluene, fractionation of (YOUNG), T., 682.

diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.

molecular weight of, in carbon tetrachloride or alcohol (SPEYERS), A., ii, 468.

molecular weight of alcohols in (BILTZ), A., ii, 634.

equilibrium between naphthalene, diphenylamine and; between naphthalene, β -naphthol and; and between phenanthrene, carbazole and (BRUNI), A., ii, 406.

and water, mutual solubilities of (HERZ), A., ii, 83.

flash point of (RAIKOW), A., i, 847.

absorption of argon by (BERTHELOT), A., ii, 653.

action of chlorosulphonic acid on (YOUNG), T., 174.

action of hydrogen sulphide on mercuric chloride dissolved in (NAUMANN), A., ii, 423.

action of hexachlorethane, pentachlorethane, and of tetrachlorethylene on (MOUNEYRAT), A., i, 490.

action of, on stannic bromide (GARELLI), A., ii, 271.

condensation of, with phenyloxanthranol (GUYOT), A., i, 295.

Benzene, amino-. See Aniline.

1:2:3:5-tetramino- (DROST), A., i, 751.

bromo-, action of sodium alkyl oxides on (LÖWENHERZ), A., ii, 639.

di-bromo-, tetra-bromo-, and hexa-bromo-, preparation of (COHEN and DAKIN), T., 894; P., 1899, 183.

1:4-di-bromo- (THOMAS), A., i, 26, 743.

1:3:5-tri-bromo-, 2:4:6-tri-iodo- (ISTRATI), A., i, 341.

o-, m-, and p-bromonitro-, action of amines on (NAGORNOFF), A., i, 425.

Benzene, sym-tribromodinitro- (JACKSON and KOCH), A., i, 877.

chloro-, action of sodium alkyl oxides on (LÖWENHERZ), A., ii, 639.

mono-, di-, tri-, tetra-, penta-, and hexa-chloro-, produced in presence of aluminium chloride (MOUNEYRAT and POURET), A., i, 263.

di-chloro- and tri-chloro- (MOUNEYRAT), A., i, 341.

tri-chloro- (THOMAS), A., i, 743.

p-chlorobromo- (COHEN and DAKIN), T., 894; P., 1899, 183; (MOUNEYRAT and POURET), A., i, 584; (THOMAS), A., i, 743.

pentachlorobromo-, formation of (THOMAS), A., i, 26.

1:3:5-trichloro-2-bromo-, 1:3:5-trichloro-2-bromo-4:6-dinitro-, 1:3:5-trichloro-2-iodo-, 1:3:5-trichloro-2:4-dinitro- (JACKSON and GAZZOLO) A., i, 744.

p-chloriodo- (MOUNEYRAT), A., i, 341; (THOMAS), A., i, 676, 743.

1:3:6-chlorodinitro-, and 2:1:4-chlorodiamino-, formation of (KEHRMANN and GRAB), A., i, 129.

iodo-, decomposition of, by sodium amyloxide or ethoxide (LÖWENHERZ), A., ii, 639.

iododichloride, potential difference between chlorine and (SULLIVAN), A., ii, 398.

nitro-, formation of (BAMBERGER and TSCHIRNER), A., i, 348; (SCHALL and KLEIN), A., i, 425.

conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397; (EULER), A., ii, 462.

diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.

structure of (LACHMANN), A., i, 588.

electrolytic reduction of (LÖB), A., i, 122; (ELBS and KOPP), A., i, 270.

influence of, on the oxidation of iodide by bromic acid (SCHILOFF), A., ii, 147.

detection of (MULLIKEN and BARBER), A., ii, 382.

o- and p-dinitro- (DE BRUYN and STEGER), A., i, 744.

and p-, influence of water on the action of sodium methoxide or ethoxide on (DE BRUYN and STEGER), A., i, 745.

velocity of action of sodium methoxide or ethoxide on (STEGE), A., i, 745.

o-nitro-o-dinitroso-, p-nitro-o-dinitroso-, m-dinitro-o-dinitroso- (DROST), A., i, 751.

- Benzene**, nitroso-, formation of (BAMBERGER and TSCHIRNER), A., i, 348.
 hylotropic-isomeric forms of (SCHAUM), A., ii, 733.
 behaviour of, towards *o*-aminophenol (KRAUSE), A., i, 272.
 action of zinc ethyl on (LACHMANN), A., i, 588.
 1 : 2 : 3 : 4-tetranitroso- and nitro-tetranitroso- (NIETZKE and GEESE), A., i, 347.
- 3'-Benzeneazo-1 : 3-dimethylindazole** (BAMBERGER), A., i, 544.
- Benzeneazodiphenylimidocarbamide** (SCHALL), A., i, 281.
- Benzeneazo-*p*-ethoxybenzeneazophenol** (KRAUSE), A., i, 272.
- Benzeneazohydroxyanilide** (BAMBERGER and TSCHIRNER), A., i, 687.
- Benzeneazo-3-hydroxy-1 : 2-dimethylbenzoxazole**, **Benzeneazo-3-hydroxy-1-methylbenzoxazole**, **Benzeneazo-3-hydroxy-2'-phenyl-1-methylbenzoxazole** (HEINRICH), A., i, 172, 173.
- Benzeneazohydroxy-*o*-toluidide and *p*-toluidide** (BAMBERGER and TSCHIRNER), A., i, 687.
- 3'-Benzeneazoidazole** (BAMBERGER and VON GOLDBERGER), A., i, 545.
- Benzeneazo-*p*-methoxybenzeneazophenol** (KRAUSE), A., i, 272.
- Benzeneazomethylphloroglucinolazobenzene** (BOEHM), A., i, 32.
- o*-Benzeneazophenol**, ***p*-chloro-** (KRAUSE), A., i, 272.
- Benzeneazostyrene**, ***p*-bromo-** (FREER), A., i, 357.
- Benzeneazo-*m*-xylene**, **2 : 4-dinitro-** (WILGEROUT and KLEIN), A., i, 883.
- Benzeneazo-**. See also Phenylazo-.
- Benzenesulphinic acid**, ***p*-chloro-** and ***p*-bromo-** (GATTERMANN), A., i, 517.
- Benzenesulphodimethylenimide** (HOWARD and MARCKWALD), A., i, 749.
- Benzenesulphonazide**, **Benzenesulphonehydrazide** (CURTIUS and LORENZEN), A., i, 148, 149.
- Benzenesulphonic acid**, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
 ethereal salts, velocity of reaction between alcohols and (SAGREBIN), A., ii, 735.
 hydrazine salt of (CURTIUS and LORENZEN), A., i, 149.
- Benzenesulphonic sulphide**, **disulphide**, **trisulphide**, and **tetrasulphide** (TROEGER and HORNUNG), A., i, 905.
- Benzenesulphonylbenzoylphenylmethylhydrazine** (BAMBERGER), A., i, 701.
- Benzenesulphonylphenylethylhydrazine** (BAMBERGER), A., i, 701.
- Benzenesulphotrimethyleneimide** (HOWARD and MARCKWALD), A., i, 749.
- Benzenyl-3-amino-*p*-cresol** and its benzoyl and dibenzoyl derivatives (AUWERS and CZERNY), A., i, 131.
- Benzenyl-β-*o*-amino-phenyl- and *p*-tolylbenzimidazole** (VON NIEMENTOWSKI), A., i, 646.
- Benzenylaminophenyleneamidine**. See Phenylaminobenzimidazole.
- Benzenylaminooxime**, **Benzenylanilinoxime**, and **Benzenylazoxime**, ***o*-chloro-** (WERNER and BLOCH), A., i, 753, 754.
- Benzenyl-3-benzamido-*p*-cresol** and its benzoate (AUWERS and CZERNY), A., i, 132.
- Benzenylphenyleneamidine**. See Phenylbenzimidazole.
- Benzenylpiperidinoxime**, **Benzenyltoluidinoxime**, ***o*-chloro-** (WERNER and BLOCH), A., i, 754.
- Benzhydrazide**, ***m*-bromo-**, hydrochloride : sodium, acetyl, benzaldehyde, ***o*-hydroxybenzaldehyde**, and acetone derivatives (CURTIUS and PORTNER), A., i, 136.
***p*-bromo-**, hydrochloride: benzaldehyde and acetone derivatives (CURTIUS and PORTNER), A., i, 136.
***m*-dibromo-** (CURTIUS and PORTNER), A., i, 136.
- Benzhydrol**, condensation of, with benzonitrile (JAPP and FINDLAY), T., 1031; P., 1899, 165.
 condensation of, with ***p*-quinone** and with ***p*-quinonoid compounds** (MÖHLAU and KLOFFER), A., i, 914.
- Benzhydroxamic acid**, ***m*-nitro-** and ***p*-nitro-** (WERNER and SKIBA), A., i, 691.
- Benzhydroximic chloride**, ***o*-chloro-** (WERNER and BLOCH), A., i, 753.
- Benzidine**, condensation of, with ethylic acetoacetate (HEIDRICH), A., i, 366.
- Benzidinedithiocarbimide**, and its compounds with anisole and phenetole (BAMBERGER), A., i, 697.
- Benzil**, electrolysis of (JAMES), A., i, 909.
 repeated crystallisation of (BOGOJAWLENSKY), A., ii, 206.
 condensation of, with acetophenone (WISLICENUS and LEHMANN), A., i, 59.
 condensation of, with anhydracetonebenzil (JAPP and FINDLAY), T., 1025; P., 1899, 164.
 condensation of, with ***o*-aminodiphenylamine** (KEHRMANN and WOLFFSON), A., i, 506.

- Benzil** condensation of, with benzylidenacetone (JAPP and FINDLAY), T., 1026; P., 1899, 164.
condensation of, with resorcinol (VON LIEBIG), A., i, 915.
- Benzil-*o*-carboxylic acid**, the two modifications of (SOCH), A., i, 216.
- Benzildioxime peroxide** (WERNER and SKIBA), A., i, 690.
dichloro- (WERNER and BLOCH), A., i, 754.
- Benzilantidioxime** and **Benzilsyn-dioxime**, *o*-dichloro-, the diacetate and dipropionate (WERNER and BLOCH), A., i, 754.
- Benzilic acid** (*α -hydroxydiphenylacetic acid*, *diphenylglycollic acid*), condensation of, with benzonitrile (JAPP and FINDLAY), T., 1028; P., 1899, 165.
- Benzil-*p*-nitrophenylosazone** (HYDE), A., i, 689.
- α -* and *β -Benzilosazone*, acetyl derivatives (BILTZ), A., i, 502.
- Benzil-reaction**, the so-called (BAMBERGER and SCHOLL), A., i, 701.
- Benzimidazole** alkyl haloids, oxidation of (PINNOW and SÄMANN), A., i, 943.
- Benzimidazole-1:2-dicarboxylic acid**, and dimethylic salt and anhydride (FISCHER), A., i, 641.
- Benzimidobenzhydrylic oxide**, formation and synthesis of (JAPP and FINDLAY), T., 1031; P., 1899, 165.
- Benzimidoxydiphenylacetic acid**, and its silver salt, and its conversion into triphenyloxazolone; action of hydriodic acid on; action of caustic potash on (JAPP and FINDLAY), T., 1029; P., 1899, 165.
- Benzimidodiphenyltriazoline** (CUNEO), A., i, 549.
- Benzo-*o*-aminoanilide**, *o*-amino-, and salts (VON NIEMENTOWSKI), A., i, 644.
- Benzo-*m*-amino-*p*-toluidide**, *o*-amino- (VON NIEMENTOWSKI), A., i, 644.
- Benzobenzylamide**, nitroso-, behaviour of, towards alcohol (VON PECHMANN), A., i, 134.
- p*-Benzobromophenylhydrazide** (FREER), A., i, 357.
- Benzodinitranilide** (MUTTELET), A., i, 500.
and *p*-nitro-derivative (KYM), A., i, 943.
- Benzodiphenylcarbamide** (DAINS), A., i, 594.
- Benzoethylamide** (WHEELER and JOHNSON), A., i, 354.
- "**Benzoflavine 6B.F.O.**," constitution of (MEYER and GROSS), A., i, 945.
- Benzopurpurin**, molecular weight of, in aqueous solution (KRAFFT), A., ii, 473.
- Benzo-hexaphenyltrifurfuran** (JAPP and MELDRUM), T., 1043; P., 1899, 167.
- Benzoic acid**, formation of (WEILER), A., i, 491.
solubility of, in solutions of sodium acetate or formate (NOYES and CHAPIN), A., ii, 274.
behaviour of, towards fused alkali nitrates (NÄGELI), A., i, 916.
compound of, with sulphuric acid (HOOGWERFF and DORP), A., i, 672.
and methylic and ethylic salts, nitration of (HOLLEMAN), A., i, 747.
detection of, in milk (BREUSTEDT), A., ii, 532.
- Benzoic acid**, silver salt, solubility of, in solutions of nitric acid and of chloracetic acid (NOYES and SCHWARTZ), A., ii, 10.
ethereal salts of, electrical absorption and dispersion of (LÖWE), A., ii, 200.
benzenyl-3-benzamido-*p*-cresol salt (AUWERS and CZERNY), A., i, 132.
benzylic salt, action of caustic soda on (KOHN and TRANTOM), T., 1161; P., 1899, 194.
cholesterylic salt, heat of transition of, from crystalline-liquid to isotropic form (HULETT), A., ii, 469.
ethoxyphenylic salt (MERCK), A., i, 802.
- o*- and *p*-hydroxyphenylmercuric chloride salts (DIMROTH), A., i, 428.
toluquinone-*o*- and *m*-oxime salts (BRIDGE and MORGAN), A., i, 130.
triphenylvinyl salt (BILTZ), A., i, 439.
trimethylammonium, tripropylammonium, and phenylammonium salts (LLOYD and SUDBOROUGH), T., 596; P., 1899, 3.
- Benzoic acid**, *m*-amino-, and *p*-amino-, ethylic salts, and benzoyl derivatives of (LIMPRICHT), A., i, 292.
p-amino-, preparation and methylation of (PINNOW), A., i, 588.
- o*-, *m*-, and *p*-amino-, oxidation of, with chromic acid (DE CONINCK and COMBE), A., i, 347.
and *o*-, *m*-, *p*-bromo-, amyl salts, densities and specific rotations of (GUYE and BABEL), A., ii, 718.
- 2:4:6-*tribromo*-, phenylammonium, *m*-bromophenylammonium, trimethylammonium, tripropylammonium, and tribenzylammonium salts (LLOYD and SUDBOROUGH), T., 592, 593; P., 1899, 3.

- Benzoic acid**, 2:4:6-tribromo-3-amino-, α - and β -naphthylammonium, phenylammonium, *m*-bromo- and *m*-nitro-phenylammonium, phenyldiethylammonium, 2:4:5- and 2:4:6-trimethylphenylammonium, trimethylammonium, tripropylammonium, and tribenzylammonium salts (LLOYD and SUDBOROUGH), T., 589—592; P., 1899, 3.
- o*-chloro-, phenylic salt (MICHAELIS and KERKHOF), A., i, 53.
- dichloro*-, *p*-tolyllic salt (BERTOZZI), A., i, 878.
- o*-nitro-, aminolytic constants of aniline and pyridine in presence of (GOLDSCHMIDT and SALCHER), A., ii, 551.
- m*-nitro-, α - and β -naphthylammonium, trimethylammonium, phenylammonium, and 2:4:5-trimethylphenyl-, *m*-bromophenyl-, and *m*-nitro-phenyl-ammonium salts (LLOYD and SUDBOROUGH), T., 594; P., 1899, 3.
- p*-nitro-, *d*initrophenylic salt (KYM), A., i, 648.
- o*-nitro-, and *p*-nitro-, aminoisopropyllic salts (UEDINCK), A., i, 498, 499.
- o*-, *m*-, and *p*-nitro-, solubilities of, in water, chloroform, and alcohol (HOLLEMAN), A., i, 141.
- solubility of mixtures of (HOLLEMAN), A., i, 282.
- amylic salts, densities and specific rotations of (GUYE and BABEL), A., ii, 718.
- estimation of (HOLLEMAN), A., ii, 257.
- 2:4:6-trinitro-, α - and β -naphthylammonium, phenylammonium, *m*-bromo- and *m*-nitro-phenylammonium, trimethylammonium, tripropylammonium, and tribenzylammonium, 2:4:5- and 2:4:6-trimethylphenylammonium, and phenyldiethylammonium salts (LLOYD and SUDBOROUGH), T., 585—586; P., 1899, 3.
- Benzoic acids**, di-*o*-substituted, etherification of, and hydrolysis of ethereal salts of (LLOYD and SUDBOROUGH), T., 580.
- Benzoic chloride**, compound of, with benzophenone and ferric chloride (NENCKI), A., i, 879.
- di-*o*-substituted, hydrolysis of (LLOYD and SUDBOROUGH), T., 581.
- Benzoic peroxide**, physiological action of (NENCKI and ZALESKI), A., ii, 676.
- Benzoic-series**, chloro-derivatives, thermochemistry of (RIVALS), A., ii, 204.
- o*-Benzoisulphinide** ("saccharin"), action of methylic alcohol on (HOOGWERFF and DORP), A., i, 870.
- See also "Saccharin."
- Benzoïn**, electrolysis of (JAMES), A., i, 909.
- velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- condensation of, with phenol, thymol, catechol, resorcinol, quinol, and phloroglucinol (JAPP and MELDRUM), T., 1037; P., 1899, 167.
- condensation of, with *o*-, *m*-, and *p*-phenylenediamines (JAPP and MELDRUM), T., 1043; P., 1899, 169.
- condensation of, with resorcinol (VON LIEBIG), A., i, 915.
- γ -Benzoinphenylhydrazone** (FREER), A., i, 358.
- Benzoinphenylhydrazones** (SMITH), A., i, 909.
- Benzoinpinacene** (tetraphenylerythritol) (KAUFFMANN), A., i, 152.
- Benzoin-yellow**, and acetyl derivative, lead salt, and dibromide (GRAEBE), A., i, 220.
- Benzo-*o*-nitranilide**, *o*-nitro- (VON NIEMENTOWSKI), A., i, 643.
- Benzonitrile**, formation of (MATHEWS), A., i, 56; (WHEELER and JOHNSON), A., i, 431; (DELÉPINE), A., i, 694.
- conductivity of solutions of potassium chloride and iodide, and of sodium bromide and iodide in (EULER), A., ii, 462.
- reactions of metallic salts dissolved in (NAUMANN), A., ii, 423.
- absorption of argon by (BERTHELOT), A., ii, 653.
- action of cuprous chloride on (RABAUT), A., i, 557.
- condensation of, with benzoic acid, and with benzhydrol (JAPP and FINDLAY), T., 1028; P., 1899, 165.
- Benzonitrile**, *o*-amino-, and its acetyl derivative (FRIEDLÄNDER), A., i, 350.
- p*-chloro-, *p*-bromo-, and *p*-nitro-, action of cuprous chloride on (RABAUT), A., i, 557.
- Benzonitriles**, di-*o*-substituted; hydrolysis of (LLOYD and SUDBOROUGH), T., 581.
- β -Benzo-*p*-nitrophenylhydrazide** (HYDR), A., i, 688.
- Benzo-*m*-nitro-*p*-toluidide**, *o*-nitro- (VON NIEMENTOWSKI), A., i, 644.
- Benzophenone**, melting point of, influence of pressure on (HULETT), A., ii 469.

- Benzophenone**, osmotic pressure of ethereal solutions of (GOODWIN and BURGERS), A., ii, 274.
velocity of crystallisation of, and specific heats and heat of fusion of (TAMMANN), A., ii, 549.
effect of, on transition temperature of *p*-azoxyanisole (SCHENCK and SCHNEIDER), A., ii, 637.
compound of, with benzoic chloride and ferric chloride (NENCKI), A., i, 879.
- Benzophenone**, *o*-diamino-, diacetyl derivative of, diazo-derivative of (HEYL), A., i, 216, 701.
o-chloro- (GRAEBE and KELLER), A., i, 703.
di-*o*-iodo- (HEYL), A., i, 216.
s-*o*-nitro-*o*-amino- (HEYL), A., i, 701.
- Benzophenone-*p*-nitrophenylhydrazone** (HYDE), A., i, 689.
- Benzophenonephenylimine**, *o*-chloro- (GRAEBE and KELLER), A., i, 703.
- Benzophenylcarbamide** (WALTHER and WLODKOWSKI), A., i, 590.
- Benzophenylenediamide**, *p*-nitro-, *di*-*o*-nitro-, *di*-*m*-nitro-, and *di*-*p*-nitro- (WALTHER and PULAWSKI), A., i, 641.
- Benzophenylhydrazide**, *o*-amino-, and *o*-nitro- (KÖNIG and REISSERT), A., i, 457.
- Benzo-4-phosphinic acid**, 2-chloro-, and its barium hydrogen salt (MELCHIKER), A., i, 208.
- Benzopurin**, use of, in alkalimetry (GLASER), A., ii, 573.
- Benzoquinone**. See Quinone.
- o*-, *m*-, and *p*-**Benzotetraphenyldifurans** (JAPP and MELDRUM), T., 1039, 1041, 1042; P., 1899, 167.
- m*-**Benzotetraphenyldipyrroline** (JAPP and MELDRUM), T., 1044; P., 1899, 169.
- Benzo-*o*-tolylcarbamide** (WALTHER and WLODKOWSKI), A., i, 590.
- Benzotrichloride**, action of lead acetate on (BODROUX), A., i, 678.
- 2-Benzo-*m*-xylidide** (FRIEDLÄNDER and BRAND), A., i, 351.
- Benzo-*m*-xyllylcarbamide** (WALTHER and WLODKOWSKI), A., i, 591.
- 3-Benzoxo-1-methylbenzoxazole** (HEINRICH), A., i, 173.
- Benzoylactic acid**, ethylic salt, electrical dispersion of (LÖWE), A., ii, 201.
copper compound and basic copper methoxide of (WISLICENUS), A., i, 192.
- Benzoylactic acid**, ethylic salt, condensation of, with ethylic *p*-nitrophenylpropionate, and with ethylic acetylenedicarboxylate (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.
condensation of, with ethylic phenylpropionate (RUHEMANN), T., 253; P., 1899, 6.
- Benzoylacetacetic acid**, ethylic salt, action of *p*-phenetidine on (FOGLINO), A., i, 132.
- Benzoylacetone**, condensation of, with ethylic phenylpropionate (RUHEMANN), T., 415; P., 1899, 15; (RUHEMANN and CUNNINGTON), T., 781; P., 1899, 169.
dithio-, and metallic derivatives (VAILLANT), A., i, 600.
- Benzoylacetonechloral**, and its oxime (GIGLI), A., i, 12.
- Benzoylacetophenetidine** (FOGLINO), A., i, 132.
- Benzoylacetoxime**, isomeric forms of (SCHMIDT), A., i, 206.
- Benzoylacrylic acid**, action of hydrazine on (GABRIEL and COLMAN), A., i, 390.
- Benzoylalanine** (*α*-benzamidopropionic acid), *d*- and *l*-, specific rotations of (FISCHER), A., i, 888.
- Benzoylanthracene**. See Anthraphenone.
- Benzoylaspartic acid**, *d*-, *l*- and *r*-, specific rotations of (FISCHER), A., i, 889.
- p*-**Benzoylazobromobenzene**, *perbromides* (FREER), A., i, 357.
- Benzoylazotide**, distillation of (SNAPE and BROOKE), T., 208; P., 1899, 22.
- Benzoylbenzhydroxamic acid**, *m*-chloro-, *o*-nitro-, *m*-nitro- and *p*-nitro- (WERNER and SKIBA), A., i, 690, 691.
- Benzoylbenzylmalononitrile** (HESSLER), A., i, 899.
- Benzoylbiuret**, from carbamide and benzoic chloride (WALTHER and WLODKOWSKI), A., i, 590.
- Benzoyl-*p*-bromophenylsemicarbazide**, *p*-bromo- (CURTIUS and PORTNER), A., i, 136.
- Benzoylcapsaicin** (MICKO), A., i, 715.
- Benzoylcarbinol**, formation of (COLLET), A., i, 434.
- Benzoylceerin** (THOMS), A., ii, 324.
- Benzoylcreosol**, and its acetyl and benzoyl derivatives (BARTOLOTTI), A., i, 368.
- Benzoyldiketonnaphthadihydropyrazole** (VON PECHMANN and SEEL), A., i, 948.
- Benzoyldimethylcrotonic acid**, two isomeric forms of (BOSSI), A., i, 522.

- Benzoyl-1': 3'-dimethyl-3'-ethyl-2'-methylenindoline** (PLANCHER), A., i, 452.
- Benzoyl-3': 3'-dimethyl-1'-ethyl-2'-methylenindoline** (PLANCHER and BETTINELLI), A., i, 455.
- Benzoylethylbornylamine** (FORSTER), T., 946.
- Benzoylethyltetrahydrophthalazine** (PAUL), A., i, 777.
- ab-Benzoylethylthiocarbamic acid, and amide** (DIXON), T., 376; P., 1899, 52.
- aa- and ab-Benzoylethylureas** (DIXON), T., 383, P., 1899, 53.
- ψ -n-Benzoylethylurea** (DIXON), T., 380; P., 1899, 52.
- Benzoylfabianaresen** (KUNZ-KRAUSE), A., i, 449.
- Benzoylfurfuran and oxime, and its two acetyl derivatives** (MARQUIS), A., i, 798.
- Benzoylglutamic acid, *d*-, *l*-, and *r*-, specific rotations of** (FISCHER), A., i, 889.
- Benzoylhydroxydimethylbenzoxazole** (HENRICH), A., i, 172.
- Benzoylhydroxydiphenyleneketone** (HEYL), A., i, 216.
- Benzoylmalic acid, methylic and ethylic salts, molecular volumes of** (FRANKLAND), T., 349.
preparation and specific rotations of (FRANKLAND and WHARTON), T., 339; P., 1899, 26.
- Benzoylmesitylene, hydrolysis of, by phosphoric acid** (KLAGES and LICKROTH), A., i, 599.
- Benzoylmethylbornylamine** (FORSTER), T., 943.
- Benzoylmethylcreosol** (BARTOLOTTI), A., i, 368.
- Benzoylmethyldithiodiazolonethiol** (BUSCH and ZIEGELE), A., i, 827.
- Benzoylmethylmorpholquinone** (VON GERICHTEN), A., i, 307.
- β -Benzoyl- α -methylpropionic anhydride and anilide** (KLOBB), A., i, 511.
- Benzoylmethylpyrazoline** (CURTIUS and ZINKEISEN), A., i, 166.
- ab-Benzoylmethylthiocarbamide** (DIXON), T., 383; P., 1899, 53.
- ab-Benzoylmethylurea** (DIXON), T., 383; P., 1899, 53.
- ψ -n-Benzoylmethylurea** (DIXON), T., 381; P., 1899, 53.
- Benzoylmorphine hydrochloride** (MERCK), A., i, 649.
- Benzoylnaphthalanmorpholine** (KNORR), A., i, 782.
- Benzoylnaphthyldithiodiazolonethiol** (BUSCH and MÜNKER), A., i, 952.
- Benzoyl-*m*- and -*p*-nitrobenzhydroxamic acids, and *m*- and -*p*-nitro-derivatives** (WERNER and SKIBA), A., i, 691.
- Benzoylisonitrosophenylindole** (SPICA and ANGELICO), A., i, 938.
- Benzoyloporesinotannol** (TSCHIRCH and KNITL), A., i, 714.
- Benzoylornithine, from hydrolysis of ornithuric acid** (SCHULZE and WINTERSTEIN), A., i, 107.
- Benzoyloxybenzeneazo-3-hydroxy-2'-phenyl-1-methylbenzoxazole** (HENRICH), A., i, 172.
- Benzoyloxybenzoic acid, ethylic salt** (LIMPRICHT), A., i, 292.
- Benzoyloxyhydroxydimethylglutaric acid, lactone of** (LAWRENCE), T., 421.
- Benzoylphenetidide** (BISCHOFF and SCHATZ), A., i, 278.
- 3-Benzoyl-1-phenyl-4: 5-campho-oxypyrazole, and 5-Benzoyl-1-phenyl-3: 4-campho-oxypyrazole and its methiodide** (WAHL), A., i, 778.
- Benzoylphenylcyanamide, formation of** (RIZZO), A., i, 53.
- Benzoylphenylhydrazoncarbodiphenylamine** (SCHALL), A., i, 281.
- Benzoyl-1-phenylisindazolone** (KÖNIG and REISSERT), A., i, 457.
- Benzoyl-4'-phenyl-3-methyl-3': 4'-dihydroquinazoline, and Benzoyl-4'-phenyl-3-methyl-2'-ketodihydroquinazoline** (HANSCHKE), A., i, 775.
- Benzoylphenylmethyl- α -pyrone.** See Diphenylaceto- α -pyrone.
- Benzoylphloroglucinol methylic ether.** See Cotoin.
- Benzoylpicrotin** (MEYER and BRUGER), A., i, 227.
- Benzoylcyclopropanetricarboxylic acid, ethylic salt** (RUHEMANN and CUNNINGTON), T., 785; P., 1899, 161.
- β -Benzoylpropionic acid** (KLOBB), A., i, 114.
 α -cyano-. See Phenacylcyanooacetic acid.
- β -Benzoylpropionic anhydride, and anilide** (KLOBB), A., i, 510.
- Benzoylpropylaniline** (PICCININI and CAMOZZI), A., i, 74.
- Benzoylpropylbornylamine** (FORSTER), T., 949.
- Benzoylpulegenacetone** (BARBIER), A., i, 300.
- Benzoyltartaric acid, ethylic salt, molecular volume of** (FRANKLAND), T., 349.
- Benzoyltetrahydroquinaldine, *d*- and *l*-, rotation, density, and molecular volume of, and *r*-, density of, and crystalline forms** (POPE and PEACHEY), T., 1073, 1089; P., 1899, 199.

- Benzoyltetrahydro-*p*-toluquinaldine**, *l*-, rotatory power of, and *r*-, crystalline form of (POPE and RICH), T., 1100.
- Benzoylthiocarbimide** (DIXON), T., 379.
- Benzoylthiocarbonic acid**, imino-, di-ethyl salt (DIXON), T., 378; P., 1899, 52.
- Benzoyl-*p*-tolylidithiodiazolonethiol** (BUSCH and VON BAUR-BREITENFELD), A., i, 951.
- Benzoyltriethylbenzene**, hydrolysis of, by phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- Benzoyltrimethylenetricarboxylic acid**, ethylic salt (RUHEMANN and CUNNINGTON), T., 785; P., 1899, 169.
- Benzoyltrimethylindolenine** (PLANCHER and BETTINELLI), A., i, 543.
- Benzoyltyrosine** (ERLENMEYER and HALSEY), A., i, 761.
- Benzoyltyrosines**, *d*- and *r*-, and *r*-brucine salt, specific rotation of (FISCHER), A., i, 889.
- Benzoyl-*m*-xylene**, hydrolysis of, by phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- Benzylallylamine**, formation of (PAAL and APITZSCH), A., i, 269.
- Benzylallylaniline** (WEDEKIND), A., i, 353.
- Benzylamine**, formation of (BAILLIE and TAFEL), A., i, 268.
action of aqua regia on (SOLONINA), A., i, 663.
action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
action of nitrosyl chloride on (SOLONINA), A., i, 473.
- Benzylamine**, *o*-cyano-, preparation of, and its salts (GARRIEL and LANDSBERGER), A., i, 134.
- Benzylaniline**, cryoscopic behaviour of, in azobenzene solution (BRUNI and GORNI), A., ii, 731.
depression of freezing point of dibenzyl by : and depression of freezing point of, by dibenzyl, stilbene, azobenzene, and benzylideneaniline (GARELLI and CALZOLARI), A., ii, 732.
- Benzylaniline**, *o*-cyano-, and its salts (LANDSBERGER), A., i, 210.
- Benzyl-*o*-anisidine**, *p*-nitro-, and its formyl and acetyl derivatives (PAAL and BENKER), A., i, 587.
- Benzyl-*o*-anisylphenylcarbamide**, *p*-nitro- (PAAL and BENKER), A., i, 587.
- 2-Benzylbenzimidazole**, and salts (WALTHER and PULAWSKI), A., i, 640.
- γ -Benzyl- γ -benzylidenepyrotartaric acid**, and salts (STOBBE, RUSSWURM, and SCHULTZ), A., i, 903.
- n*-Benzyl-*v*-benzylmethylthiourea** (DIXON), T., 374; P., 1899, 54.
- Benzylbornylamine**, hydrochloride, platinochloride (FORSTER), T., 951; P., 1899, 72.
o-nitro-, *p*-nitro-, hydrochlorides, platinochlorides (FORSTER), T., 952, 953; P., 1899, 72.
- Benzylcarbamide**, oxidation of (OECHSNER DE CONINCK), A., i, 421.
- Benzyl- β -chloro-(-bromo- and -iodo)-propylamine**, salts of (UEDINCK), A., i, 497.
- Benzylcyanoacetic acid**, and ethylic and silver salts and amide (HESSLER), A., i, 898.
- Benzylidicyanoacetic acid**, ethylic salt (HESSLER), A., i, 899.
- Benzylidethylylamine**, aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
- Benzylidihydrocarvol** (WALLACH), A., i, 532.
- Benzylidimethylamine**, formation of (BAILLIE and TAFEL), A., i, 268.
aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
- n*-Benzyl-*v*-dimethylthiourea and *r*-Benzyl-*n*-*v*-dimethylthiourea** (DIXON), T., 375; P., 1899, 54.
- α -Benzyl-*c*-diphenylthiobiuret** (DIXON), T., 397; P., 1899, 63.
- Benzyl- α -ethyl benzyl ketoxime** (FRANCIS), T., 869.
- Benzylethylcyanoacetimidooethyl ether** (HESSLER), A., i, 900.
- Benzylethylenediamine** (BLEIER), A., i, 665.
- v*-Benzylethylene- ψ -thiocarbamide** (UEDINCK), A., i, 498.
- Benzylethoxythiocarbamide** (MARCKWALD), A., i, 505.
- Benzylformhydroxamic acid** (NEF), A., i, 109.
- Benzylguaiacol** (BOSCOGRANDE), A., i, 427.
- Benzylglutaconic acid**, from hydrolysis of ethylic benzylisoaconitate (GUTHZEIT and LASKA), A., i, 261.
- α -Benzylhydroxylamine**, action of formic acid on (NEF), A., i, 109.
- Benzyl- β -hydroxypropyl-amine**, and -nitrosamine (UEDINCK), A., i, 497.
- Benzylic alcohol**, specific heat, and heat of vaporisation of (LUGININ), A., ii, 269.
depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
and its benzenesulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.

- Benzyl alcohol**, and acetate, estimation of (HESSE and MÜLLER), A., i, 441.
p-bromo-, preparation of (BODROUX), A., i, 678.
- Benzyl amyl ether**, density, specific rotation and molecular volume of (FRANKLAND), T., 360.
 chloride, formation of (GRASSI-CRISTALDI and MASSELLI), A., i, 410; (DELÉPINE), A., i, 694.
 diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
 5-nitro-2-cyano- (GABRIEL and LANDSBERGER), A., i, 133.
 cyanide. See Phenylacetone nitrile.
- o*- and *p*-cyanophenyl ether (AUWERS and WALKER), A., i, 198.
 ethylic ether, formation of (PAAL and APITZSCH), A., i, 269.
o-nitro-, *o*-amino- and salts (THIELE and DIMROTH), A., i, 426.
 hyponitrite (DIVERS), T., 121.
 mercaptan, *o*-cyano- (GABRIEL and LEUPOLD), A., i, 121.
 methylic ether, *o*-nitro-, *o*-amino- and its oxalate (THIELE and DIMROTH), A., i, 426.
 propylic ether (PAAL and APITZSCH), A., i, 269.
 sulphide, *o*-diamino-, and *p*-diamino- (THIELE and DIMROTH), A., i, 427.
- Benzylidenecisacetacetic acid**, ethylic salt, isomeric forms of (SCHIFF), A., i, 366.
- Benzylidenecetone**, condensation of, with benzil (JAPP and FINDLAY), T., 1026; P., 1899, 164.
- Benzylidenecetophenone**. See Chalkone.
- Benzylideneaminobiuret**, and action of hydrochloric acid on it (THIELE and UHLFELDER), A., i, 118.
- Benzylideneaminodicyanodiamidine**, hydrochloride of (THIELE and UHLFELDER), A., i, 119.
- Benzylideneaminoguanidine**, *o*-nitro-, *m*-nitro-, and *p*-nitro-, and their nitrates; and diacetyl derivative (THIELE and BIHAN), A., i, 46.
- Benzylideneanhydrazetonebenzil** (JAPP and FINDLAY), T., 1023, 1026; P., 1899, 164.
 action of hydriodic acid on (JAPP and FINDLAY), T., 1023; P., 1899, 164.
- Benzylideneanhydrazetonebenzil- α -carboxylic acid** (JAPP and FINDLAY), T., 1025; P., 1899, 164.
- Benzylidene- α -anhydrosbenzillævulic acid** (JAPP and FINDLAY), T., 1025; P., 1899, 164.
- Benzylideneaniline**, cryoscopic behaviour of, in azobenzene solution (BRUNI and GORNI), A., ii, 731.
 depression of freezing point of dibenzyl, or of benzyllaniline by (GARELLI and CALZOLARI), A., ii, 732.
 compounds of, with acetic or benzoic chloride (GARZAROLLI-THURNLACKH), A., i, 881.
 action of, on pyruvic acid (GARZAROLLI-THURNLACKH), A., i, 823, 940.
- Benzylideneanilinoacetacetic acid**, ethylic salt, isomeric forms of (SCHIFF), A., i, 366.
- Benzylidene-*p*-anisidine** (MILLER, PLÖCHL, and SCHEITZ), A., i, 128.
- Benzylidenearabitol** (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Benzylideniazine hydrochloride** (CURTIUS and QUEDENFELDT), A., i, 277.
- Benzylidenecarbazone**, *o*-amino- (GABRIEL and LEUPOLD), A., i, 85.
- Benzylidenecarbazonesulphonhydrazine** (CURTIUS and LORENZEN), A., i, 149.
- Benzylidenecarbazylamine**, methiodide (FORSTER), T., 936.
 methiodide, behaviour towards phenylhydrazine; *o*-nitro- and *p*-nitro-derivatives (FORSTER), T., 1151, 1154; P., 1899, 194.
- Benzylidene-*m*- and *p*-bromobenzhydrazides** (CURTIUS and PORTNER), A., i, 136.
- Benzylidenecamphors**, enantiomorphous structure of (MINGUIN), A., i, 771.
- Benzylidenecornicularic acid**, methylic salt (THIELE and RÖSSNER), A., i, 614.
- Benzylidenediacetacetic acid**, ethylic salt (KNOEVENAGEL and FABER), A., i, 146.
 desmotropic forms of (RABE), A., i, 289.
- Benzylidenediacetacetic acid, *p*-chloro-**, ethylic salt (KNOEVENAGEL and WEISS), A., i, 215.
m-nitro-, ethylic salt, and oxime, and phenylhydrazone (KNOEVENAGEL and SCHÜRENBERG), A., i, 214.
o-nitro-, and *p*-nitro-, ethylic salts (KNOEVENAGEL and HOFFMANN), A., i, 214.
- Benzylidenediacylacetone** (KNOEVENAGEL and FABER), A., i, 146.
- Benzylidenedibenzyl ketone**, hydrogen chloride additive product of (GOLDSCHMIEDT and KNÖPPER), A., i, 141.
- Benzylidenedihydrocarvone**, oxime (WALLACH), A., i, 532.
- Benzylidenediphenylhydroxyethylamine**, and acetate (ERLENMEYER), A., i, 760.

- Benzylidenediphenylcyclopentenone** (JAPP and FINDLAY), T., 1023; P., 1899, 164.
- Benzylidene- α -glucoheptonic acid**, specific rotation and solubility of (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.
- Benzylidenesulphazinesulphonic acid** (STOLLÉ), A., i, 430.
- Benzylideneiminophenyltriazoline**, (BAMBERGER and VON GOLDBERGER), A., i, 547.
- Benzylidenemalononic acid**, and *p*-nitro-, ethylic salts (KNOEVENAGEL), A., i, 116.
- Benzylidenemethylamine** (WALLACH), A., i, 532.
- Benzylidenemethylhydroxy-*m*-diazine-hydrazine** (THIELE and BIHAN), A., i, 47.
- Benzylidenemethyltriazylhydrazine** and hydrochloride (THIELE and MANCHOT), A., i, 168.
- Benzylidene- β -naphthylsulphonehydrazide** and its acetyl derivative (CURTIUS and LORENZEN), A., i, 149.
- Benzylidenepaeonol**, and acetyl derivative and dibromide (EMILEWICZ and VON KOSTANECKI), A., i, 368.
- Benzylidenephenaeylcinnamic acid** (THIELE), A., i, 610.
- Benzylidenephénylacetone** (GOLDSCHMIEDT and KNÖPFER), A., i, 141.
- Benzylidene- β -pyridylhydrazine** (MOHR), A., i, 72.
- Benzylidenequinone** (ZINCKE), A., i, 265.
- Benzylidene-*d*-saccharic acid**, specific rotation and solubility of (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.
- Benzylidene-*d*-sorbitol** (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Benzylidene-*m*-tolylenediamine** (MEYER and GROSS), A., i, 945.
- Benzylidenetriphenylacetone**, action of sulphuric acid on (GOLDSCHMIEDT and KNÖPFER), A., i, 141.
- 1:3:2-Benzylidene-*m*-xylidine**, and *o*- and *m*-nitro- (BUSCH), A., i, 496.
- Benzylidenexyllylhydrazine**, and *m*-nitro- (BUSCH), A., i, 497.
- Benzylidenic bromide** (CURTIUS and QUEDENFELDT), A., i, 277.
- Benzylmalonic acid**, and its dinitrile, from hydrolysis of *tricyanethylbenzene* (HANTZSCH and OSSWALD), A., i, 406.
- Benzylmalononitrile**, and sodium, silver and bromo-derivatives, (HESSLER), A., i, 898.
- Benzylmenthol** (WALLACH), A., i, 532.
- Benzylmethylaniline**, *p*-amino- (FRANCKE), A., i, 46.
- Benzylmethylecyanacetimidoethyl ether** (HESSLER), A., i, 900.
- Benzylmethylketone-*o*-carboxylic acid**, and salts, anhydride, oxime, phenylhydrazone, and its anhydride (GOTTLIEB), A., i, 512, 513.
- Benzylmethylmalononitrile** (HESSLER), A., i, 899.
- Benzylmethoxythiocarbamide** (MARCKWALD), A., i, 505.
- Benzylmethyltetramethylenedisulphone** (AUTENRIETH and WOLFF), A., i, 580.
- Benzylisonitramine**, compound of, with zinc ethyl (HANTZSCH), A., i, 692.
- Benzyl-*o*- and *p*-nitranilines**, *p*-nitro-, and bis-*p*-nitro-, and formyl and acetyl derivatives (PAAL and BENKER), A., i, 587.
- Benzyl-*m*-nitrodiphenylcarbamide**, *p*-nitro- (PAAL and BENKER), A., i, 587.
- Benzyl-2'-nitrophenyl-3-nitrobenzimidazole**, 1'-nitro- (PINNOW and WISKOTT), A., i, 501.
- Benzylnitrosoacetamide** (PAAL and APITZSCH), A., i, 268.
- p*-Benzylxybenzaloxime** (AUWERS and WALKER), A., i, 198.
- Benzylxybenzene-*p*-sulphonic acid**, action of bromine on (ARMSTRONG), P., 1899, 177.
- Benzylparaconic acid** (THIELE and MEISENHEIMER), A., i, 603.
- Benzylphenylacetone**, chloro-, and its oxime (GOLDSCHMIEDT and KNÖPFER), A., i, 140.
- n*-Benzylphenylcarbamylothiourantoin** (DIXON), T., 409; P., 1899, 64.
- Benzylphenylethylene**, and its *di*bromide (FRANCIS), T., 869.
- Benzylphthalaminic acid**, formation of (GABRIEL and LANDSBERGER), A., i, 134.
- Benzylpiperidine**, formation of (BAILLIE and TAFEL), A., i, 268.
- oxide, and picrate (AUERBACH and WOLFFENSTEIN), A., i, 936.
- v*-Benzylpropylene- ψ -thiocarbamide** (UEDINCK), A., i, 498.
- Benzylpulegol** (WALLACH), A., i, 532.
- 1'-Benzylpyridone** (O. FISCHER, HOERGER, and JAEGER), A., i, 634.
- 1'-Benzylpyrrolidine**, and its *o*- and *p*-nitro-derivatives (SCHLINCK), A., i, 540.
- Benzylpyruvic acid** from different sources (WISLICENUS), A., i, 286.
- Benzylsorosindone** and salts (FISCHER and HEPP), A., i, 78.
- Benzylsalicylaldoxime** (AUWERS and WALKER), A., i, 198.
- Benzylstrychnine** (MOUFANG and TAFEL), A., i, 310.

- Benzylsuccinic acid**, formation of (FITTING and BROOKE), A., i, 438.
- Benzylthiocarbimide**, from oil of *Tropaeolum majus* (GADAMER), A., i, 535.
- Benzyltoluquinoneoxime**, 4-bromo-, two forms of (KEHRMANN and RÜST), A., i, 129.
- Benzylurethane** and nitroso-derivative (VON PECHMANN), A., i, 134.
- Berberine**, estimation of (GORDIN and PRESCOTT), A., ii, 826.
- Beryllium** (LEBEAU), A., ii, 554.
- Beryllium azoimide** (CURTIUS and RISSOM), A., ii, 92.
- lead iodide (MOSNIER), A., ii, 222.
- sulphate and chloride, taste of (HÖBER and KIESOW), A., ii, 207.
- Betaine**, from the root of *Althaea officinalis*; also its hydrochloride and aurochloride (ORLOFF), A., i, 4.
- Betol**, specific heat, heat of fusion, and velocity of crystallisation of (TAMMANN), A., ii, 549.
- Bilberry must**, fermentation of (OTTO), A., ii, 505.
- Bile pigments** (KÜSTER), A., i, 314; (JOLLES), A., i, 830.
- estimation of, in urine (JOLLES), A., ii, 459.
- Bilanic acid** and *iso*-Bilanic acid, preparation of (LASSAR-COHN), A., i, 552.
- Biliary acids**, detection of, in urine (VITALI), A., ii, 263.
- Bilirubin** (KÜSTER), A., i, 314; (HUGOUNENQ and DOYON), A., ii, 377; (JOLLES), A., i, 830.
- detection of (GNEZDA), A., ii, 715.
- estimation of (JOLLES), A., i, 830.
- Biliverdic acid** (*dibasic hæmatic acid*) (KÜSTER), A., i, 314, 468.
- Biliverdin** (KÜSTER), A., i, 314; (HUGOUNENQ and DOYON), A., ii, 377; (JOLLES), A., i, 830.
- Bilixanthin** (JOLLES), A., i, 831.
- Binary systems**, pressure-temperature diagram for (BANCROFT), A., ii, 402.
- Bindone**. See Anhydrobisdiketohydrindene.
- Bionucleins** and their relation to toxins (SACHAROFF), A., ii, 786.
- Biotite** from the Riesengebirge (MILCH), A., ii, 112.
- from Sierra Nevada, U.S.A. (TURNER and others), A., ii, 498.
- artificial (MOROZEWICZ), A., ii, 765.
- vanadium in (HILLEBRAND), A., ii, 113.
- 4:4'-Bisacetoaceticazodiphenyl-3:3'-dicarboxylic acid** (BÜLOW and VON REDEN), A., i, 150.
- Bisacetonediphenyl-4:4'-dihydrazone-3:3'-dicarboxylic acid** (BÜLOW and VON REDEN), A., i, 150.
- Bisazidiphenylmethane** (CURTIUS and QUEDENFELDT), A., i, 276.
- Biscarvene** (HARRIES and KAISER), A., i, 579.
- 4:4'-Bisdiazoiminodiphenyl-3:3'-dicarboxylic acid** and methylic and ethylic salts (BÜLOW and VON REDEN), A., i, 150.
- Bisdimethylnitrobrucine hydrate**, hydrochloride and nitrate (MOUFANG and TAFEL), A., i, 309.
- Bisdimethylacetone**, nitrosoimino- (CONRAD and HOCK), A., i, 632.
- 4:4'-Bismesoxalicedihydrazone-diphenyl-3:3'-dicarboxylic acid**, ethylic salt (BÜLOW and VON REDEN), A., i, 151.
- Bisindonephloroglucinol**, chloro-, and its triacetyl derivative (LIEBERMANN), A., i, 374, 523.
- Bismethylheptenone** (LÉSER), A., i, 190.
- Bismuth**, atomic weight of (LANDOLT, OSTWALD, and SEUBERT), A., ii, 87.
- colloidal (LOTTERMOSER), A., ii, 558.
- cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- Bismuth alloys** with calcium (MOISSAN), A., ii, 153; (TARUGI), A., ii, 749.
- Bismuth salts**, reduction of, with calcium carbide; (TARUGI), A., ii, 749.
- reduction of, by hypophosphorous acid and palladium (ENGEL), A., ii, 750.
- Bismuth**, basic carbonate from Saxony (ARZRUNI, THADDÉE and DANENBERG), A., ii, 563.
- chloride solutions of, in various solvents, conductivity of; molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
- iodides, estimation of iodine in (SPINDLER), A., ii, 245.
- lead iodide (MOSNIER), A., ii, 222.
- suboxide (SCHNEIDER), A., ii, 227.
- and subsulphide (VANINO and TREUBERT), A., ii, 428.
- tetroxide, preparation of, and its dihydrate (DEICHLER), A., ii, 429.
- Bismuthic acid**, preparation of (DEICHLER), A., ii, 429.
- action of hydrofluoric acid on (WEINLAND and LAUENSTEIN), A., ii, 370.
- phosphate (CAVEN and HILL), A., ii, 29.
- sulphide, separation of lead sulphide from (MOYER), A., ii, 697.

Bismuth, estimation and separation of:—

estimation of, volumetrically (SPINDLER), A., ii, 252; (REICHARD), A., ii, 386.

separation of mercury from (JANNASCH and DEVIN), A., ii, 59.

separation of antimony and arsenic from (ATKINSON), A., ii, 615.

Bismutite from Argentina (BODENBENDER), A., ii, 758.

variations in composition of (ARZRUNI, THADDEEFF, and DANNENBERG), A., ii, 563.

4:4'-Bisphenolazodiphenyl-3:3'-dicarboxylic acid (BÜLOW and VON REDEN), A., i, 150.**Bistrimethylen-di-imine and Bistrimethylen-di-p-toluenesulphonamide (HOWARD and MARCKWALD), A., i, 750.****Biuret, amino-, and action of nitrous acid on (THIELE and UHLFELDER), A., i, 118.**

nitro- and dinitro- (THIELE and UHLFELDER), A., i, 118.

dithio- (FROMM and PHILIPPE), A., i, 484.

Blasenia arenaria*, and var. *teicholytum* constituents of (HESSE), A., i, 382.*Blastenin (HESSE), A., i, 382.****Bleaching powder, formation and composition of (DITZ), A., ii, 26.****Blende (ferriferous) with metallic lustre (MIERS and HARTLEY), A., ii, 431.****Blood, electrical conductivity of (RÖTH), A., ii, 311.**

basic and acid capacity of (SPIRO and PEMSEL), A., ii, 230.

coagulation of, chemical process in the (HAMMARSTEN), A., ii, 776.

amount of cholesterol in (HEPNER), A., ii, 311.

cholesterol and cholesterylic salts in birds' (BROWN), A., ii, 311.

determination of relative volumes of corpuscles and serum in (STEWART), A., ii, 603.

origin of the fibrinogen of (MATHEWS), A., ii, 777.

a new glucoproteid in ox (ZANETTI), A., i, 180.

hæmoglobin and corpuscles in human, at different ages (SCHWINGE), A., ii, 166.

amount of iron in the plasma and leucocytes of (HÄUSERMANN), A., ii, 231.

amount of urea in (SCHÖNDORFF), A., ii, 373.

effect of injection of various carbohydrates into the circulation (PAVY), A., ii, 677.

Blood, influence of carbonic anhydride and alkali on the bactericidal action of (HAMBURGER), A., ii, 603.

reducing power of the (HELIER), A., ii, 502.

action of *m*-tolylenediamine on the (LAPICQUE and VAST), A., ii, 504.

detection of, by the guaiacol test (SCHAEER), A., ii, 195.

detection of, in urine (ARNOLD), A., ii, 194.

Blood meal. See Agricultural chemistry.**Blood pigment, action of hydrogen sulphide and acids on (HARNACK), A., i, 467.****Blood-serum, anti-rennet action of (BRIOT), A., ii, 780.**

globulins of (DE KERCKHOF), A., ii, 231.

a new glucoproteid in (ZANETTI), A., i, 180.

estimation of proteids in (PATEIN), A., ii, 827.

Boheic acid, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.**Boiler waters, acidity of (BAILEY and JOHNSTON), A., ii, 697.****Boiling point, alternation in, in the series of the chlorides of the normal acids (HENRY), A., i, 735.**

of aqueous colloidal solutions (KRAFFT), A., ii, 470.

of compounds of the general formula $\text{CH}_3(\text{CH}_2)_n\text{R}$ (BOGGIO-LERA), A., i, 843.

of liquids in exhausted vessels, influence of height of vapour column on (KRAFFT), A., ii, 464.

determination of, by Holborn and Wien's method (LADENBURG and KRÜGEL), A., ii, 545.

curves of mixtures of two of the liquids, acetone, chloroform, carbon tetrachloride (HAYWOOD), A., ii, 632.

for mixtures of alcohol, acetone, and chloroform in pairs (THAYER), A., ii, 402.

of mixtures of methylic alcohol with chloroform or acetone (PETTIT), A., ii, 632.

Boletus edulis*. See Agricultural chemistry.**Bombus muscarum* and *B. lapidarius*, composition of the wax of (SUNDVIK), A., i, 112.****Bone fats, analysis of (SHUKOFF and SCHESTAKOFF), A., ii, 191.****Bone meal, estimation of citrate-soluble phosphoric acid in (BÖTTCHER), A., ii, 55.**

See also Agricultural chemistry.

- Boracite**, transition temperature of, and volume change at (MEYERHOFFER), A., ii, 729.
 estimation of boric anhydride in (SCHWARTZ), A., ii, 808.
- Boracites** containing chlorine, preparation of (ALLAIRE), A., ii, 156.
- Borneol**, from oil of thyme (LABBÉ), A., i, 621.
 methylenic acetal of (BROCHET), A., i, 580.
- d*-**Borneol** in oils of cardamoms and rosemary (SCHIMMEL and Co.), A., i, 63.
- iso*-**Borneols**, synthetical, identity of, with fenchylic alcohols (BOUCHARDAT and LAFONT), A., i, 156.
- Bornite**. See *Erubescite*.
- l*-**Bornylic acid**, in oils of hemlock and spruce (SCHIMMEL and Co.), A., i, 63.
- Boron**, valency of (FRANKLAND), A., i, 246.
 position of, in periodic system (WILDE), A., ii, 148.
 reduction of alumina by, in chlorine (DUBOIN and GAUTIER), A., ii, 652.
- Boron nitride**, action of magnesium on (EIDMANN), A., i, 317.
trioxide (boric anhydride), reduction of, by aluminium (FRANCK), A., ii, 103.
 use of, in the decomposition of silicates (JANNASCH and WEBER), A., ii, 578.
- Boric acid**, equilibrium between, and hydrocyanic acid in combination with potassium (BERTHELOT), A., ii, 737.
triethylic salt, compound of, with sodium ethoxide, constitution of (FRANKLAND), A., i, 246.
 action of chlorine and of sodium ethoxide on (COPAUX), A., i, 183.
 detection of (LENHER and WELLS), A., ii, 520.
 detection of, in milk (DE KONINGH), A., ii, 708.
 estimation of (GOOCH and JONES), A., ii, 331.
 estimation of, by physical processes (BLYTH), T., 722; P., 1899, 51.
 estimation of, volumetrically (VADAM), A., ii, 56; (COPAUX), A., ii, 181; (JONES), A., ii, 332.
 estimation of, in boracite (SCHWARTZ), A., ii, 808.
 sulphide, formation of (DUBOIN and GAUTIER), A., ii, 652.
- Boswellic acid**, from olibanum resin, and its salts (TSCHIRCH and HALBEY), A., i, 69.
- Boulangerite** from Germany and California (GUILLEMAIN), A., ii, 757.
- Boulangerite**, artificial (SOMMERLAD), A., ii, 217.
- Bournonite** from Cornwall and the Harz (GUILLEMAIN), A., ii, 757.
- Bowlingite** from Lake Superior (WINCHELL), A., ii, 765.
- Brain**, leucomaines of the (GULEWITSCH), A., ii, 439.
 lecithin and myelin substances of the (ZUELZER), A., ii, 504.
 proportion of protagon in the (NOLL), A., ii, 568.
- Brass**, electrodeposition of (BAKER), A., ii, 749.
 action of a hard water on (HOWE and MORRISON), A., ii, 476.
- Brassica*. See *Agricultural chemistry*.
- Brassic acid** and erucic acid, isomerism of (ALBITZKY), A., i, 862.
 and sodium salt, melting points, and temperature of solidification of solutions of (KRAFFT), A., ii, 472.
- Brazilein**, constitution of (GILBODY and PERKIN), P., 1899, 75; (FEUERSTEIN and VON KOSTANECKI), A., i, 539.
 action of potassium acetate on (PERKIN), T., 443; P., 1899, 66.
 and acetyl derivatives (HERZIG), A., i, 381.
- Brazilin**, constitution of (GILBODY and PERKIN), P., 1899, 75; (FEUERSTEIN and VON KOSTANECKI), A., i, 538; (SCHALL), A., i, 539; (HERZIG), A., i, 821.
 derivatives of (GILBODY and PERKIN), P., 1899, 27.
 decomposition products of (HERZIG), A., i, 381.
- Brewing**, influence of mineral constituents of water used in (LOTT), A., ii, 683.
 sugars, analysis of (MORRIS), A., ii, 187.
- Broad bean**. See *Agricultural chemistry*.
- Brochantite** from Chili (ANZUNZI, THAD-DEEFF, and DANNENBERG), A., ii, 563.
- Bromal hydrate**, heat of dissolution, and crystalline form of (POPE), T., 460.
- Bromine** in Vesuvian products (MATTEUCCI), A., ii, 600.
 solubility of, in water (DIETZ), A., ii, 150; (WINKLER), A., ii, 742.
 solution of, in compressed gases (VILLARD), A., ii, 143.
 decomposition of water by (BERTHELOT), A., ii, 197.
 compounds, colour and stability of (KASTLE), A., ii, 476.
- Hydrobromic acid**, preparation of (VANDENBERGHE), A., ii, 150; (MENSCHUTKIN), A., i, 500.

Bromine :

- Hydrobromic acid**, aminolytic constants of aniline and pyridine in presence of (GOLDSCHMIDT and SALCHER), A., ii, 551.
decomposition of, by oxygen (BERTHELOT), A., ii, 197.
- Bromic acid**, action of hydrogen peroxide on (TANATAR), A., ii, 414.
oxidation of iodide by, catalytic action in (SCHILOFF), A., ii, 147.
- Bromates**, electrolytic formation of (VAUBEL), A., ii, 88.
action of, on acidified iodides (WAGNER), A., ii, 326.
detection of chlorates and iodates in presence of (VITALI), A., ii, 803.
- Bromine**, detection, estimation, and separation of :—
detection of small quantities of, in chlorides (BAUBIGNY), A., ii, 516.
estimation of (BOUGAULT), A., ii, 803 ; (DENIGES), A., ii, 826.
estimation of, in organic substances (LONGHI), A., ii, 328.
estimation of, in presence of chlorides (BAUBIGNY), A., ii, 516.
estimation of, in presence of chlorine and iodine (BAUBIGNY), A., ii, 244.
estimation of chlorine in large quantities of (BAUBIGNY), A., ii, 611.
separation of chlorine and iodine from (SWINTON), A., ii, 122 ; (SPEKTER), A., ii, 123 ; (BAUBIGNY), A., ii, 328.
- Bromoform**, depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
action of solution of aluminium bromide in carbon disulphide on (KONOWALOFF), A., i, 471.
action of bromine on, in presence of aluminium bromide (MOUNEYRAT), A., i, 397.
estimation of (RICHARD), A., ii, 527.
- Brongniardite**, possible identity of, with diaphorite (SPENCER), A., ii, 108.
- Bronzite**, from N. Carolina (HIDDEN and PRATT), A., ii, 300.
from the Zinjenj meteorite (MELIKOFF), A., ii, 771.
- Brookite** from Dublin (O'REILLY), A., ii, 497.
- Brucine**, formula of, and water of crystallisation ; methyl derivatives of (MOUFANG and TAFEL), A., i, 309.
action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
heptiodide (PRESCOTT), A., i, 90.
hydrate, nitro-, and its platinochloride, mercurichloride, and bidemethyl derivative (MOUFANG and TAFEL), A., i, 309.

- Brucine**, hydrazoate (POMMEREHNE), A., i, 88.
d- and *l*-mandelates (McKENZIE), T., 967.
detection of, with Piutti's reagent (SCARPITTI ; SIMONCELLI), A., ii, 344.
separation of strychnine from (STOEDER), A., ii, 715.
- Brucinic acid**, and nitrosamine hydrochloride, and methiodide (MOUFANG and TAFEL), A., i, 309.
- Brucite** from Sweden, origin of (SJÖGREN), A., ii, 761.
- Buckwheat**. See Agricultural chemistry.
- Burette**, automatic (RICHMOND ; STOKES), A., ii, 450.
new form of, and improved form of Erdmann's float for (GAWALOWSKI), A., ii, 515.
a method of using (STÖBER), A., ii, 552.
- iso*-**Butaldazine**, and its reduction, and the action of bromine on it (FRANKE), A., i, 329.
- iso*-**Butaldehyde**, action of potassium carbonate, of sodium acetate, and of alcoholic soda, on ; also condensation with acetone (FRANKE and KOHN), A., i, 10.
condensation with benzaldehyde (STRITAR), A., i, 889.
action of ethylenediamine on (KOLDA), A., i, 328.
action of, on ethylenic glycol in presence of phosphoric acid (VERLEY), A., i, 666.
action of potassium cyanide on (KOHN), A., i, 328.
condensation of, with propionic acid (KIETREIBER), A., i, 331.
- iso*-**Butaldol**, action of hydrazine hydrate on (FRANKE), A., i, 329.
cyanhydrin, preparation of (CLAISEN), A., i, 667.
and its hydrolysis (KOHN), A., i, 328.
- n*-**Butane**, from the decomposition of hexane by aluminium chloride, and solubility in amyl alcohol (FRIEDEL and GORGEU), A., i, 181.
- tetrabromo*- (*erythrene tetrabromide*) formation of (MILLER and TSCHITSCHKIN), A., i, 789.
- αβγ*-trichloro-, *βγ*-dichloro-*α*-bromo-, *α*-chloro-*βγ*-dibromo-, and *αβγ*-tribromo- (CHARON), A., i, 848.
- d*-nitro-, from the action of nitric acid on ethyl butyl ketone (FILETI and PONZIO), A., i, 111.

- iso-Butane**, ratio of specific heats for (DANIEL and PIERRON), A., ii, 725.
- tribromo- and tetrabromo-** (MOUNEY-RAT), A., i, 787.
- cyclo-Butane**, cyano- (*cyano-tetramethylene*; *cyclobutanecarboxylnitrile*) (CARPENTER and PERKIN), T., 932.
- Butanedicarboxylic acids**. See:—
 Adipic acid.
 Dimethylsuccinic acids.
 Ethylsuccinic acid.
 Methylglutaric acids.
- cyclo-Butanedicarboxylic acid** (*tetramethylenedicarboxylic acid*), and its cyano-derivative (CARPENTER and PERKIN), T., 930, 932; P., 1899, 134.
- Butanetetracarboxylic acid** (*ethylidenebismalonic acid*), ethylic salt (KNOEVENAGEL), A., i, 116.
- Butenoic acids** (α - and β -methylacrylic acids), nitriles of (HENRY), A., i, 257.
- Butenoic acid** (*vinylacetic acid*), nitrile of (HENRY), A., i, 257.
- Butinene** (*divinyl*), formation of (CHARON), A., i, 848.
- sec-Butoxysuccinic acid**, and **iso-Butoxysuccinic acid**, and rotatory powers of (PURDIE and PITKEATHLY), T., 155, 156.
- Butter**, adulterations of (COCHRAN), A., ii, 709; (PFEIFFER), A., ii, 823.
 analysis of (GADD; ZEGA), A., ii, 823.
 detection of sesamé oil in (SOLTSIEN), A., ii, 71.
 estimation of boric acid in (VADAM), A., ii, 57.
 examination of (LEONARD), A., ii, 190.
 examination of, cryoscopically (POURET), A., ii, 710.
 fatty acids of (HENRIQUES), A., ii, 258.
 Reichert-Meissl numbers for (VAN RIJN), A., ii, 822.
 rancidity of (SCALA), A., i, 478; (AMTHOR), A., ii, 259.
 See also Agricultural chemistry.
- Butter-fat**, physical and chemical constants of (BROWNE), A., ii, 709.
- iso-Butylacetic acid**. See *Hexoic acid*.
- iso-Butylacetonitrile**. See *iso-Hexonitrile*.
- iso-Butylitaconic acid** (FITTIG and ERLÉNACH), A., i, 339.
- Butylamine**, δ -chloro- (SCHLINCK), A., i, 540.
- iso-Butylamine**, action of aqua regia on (SOLONINA), A., i, 663.
- iso- and pseudo-Butylamines**, action of nitrosyl chloride on (SOLONINA), A., i, 473.
- iso-Butylitaconic acid**, and its dibromide; also its conversion into *isobutylitaconic acid* (FITTIG and ERLÉNACH), A., i, 338.
- tert-p-Butylbenzaldehyde** (VERLEY), A., i, 424.
- tert-Butylbenzene**, formation of (VERLEY), A., i, 425.
- tert-p-Butylbenzoic acid**, dinitro- (VERLEY), A., i, 424.
- Butylbenzoic acids**, *m*- and *p*- (KONOWALOFF and EGOROFF), A., i, 801.
- tert-p-Butylbenzylic alcohol**, its acetate, bromide, and dinitro-derivative (VERLEY), A., i, 424.
- Butylbornylamine**, hydrochloride, hydriodide, nitrite, platinumchloride (FORSTER), T., 950; P., 1899, 72.
- iso-Butylchlorophosphine**, and action of water, chlorine, and sulphur on (GUICHARD), A., i, 563.
- iso-Butylcitraconic acid**, and its anhydride; also the action of bromine on it, and its conversion into *isobutylitaconic acid* (FITTIG and SCHIRMACHER), A., i, 338.
 oxidation of (FITTIG and KAEHLBRANDT), A., i, 418.
- γ -Butylerotonitrile**. See *Octenoic acid*, nitrile of.
- iso-Butylene** (JOCITSCH), A., i, 748.
 α -bromo- (SOLONINA), A., i, 681.
 dibromo-, action of ethylic sodiummalonate on (IPATIEFF), A., i, 481.
 α -dichloro- (JOCITSCH), A., i, 748; (JOCITSCH and FAWORSKY), A., i, 786.
- ψ -Butylene** (*dimethylethylene*), action of nitric anhydride and peroxide on (DEMJANOFF), A., i, 845.
 α bromo- (*crotonylic bromide*), and action of potassium formate on (CHARON), A., i, 848.
 β -bromo- (SOLONINA), A., i, 681.
 dibromo-, action of zinc dust on (IPATIEFF), A., i, 470.
 α -chloro- (*crotonylic chloride*) (CHARON), A., i, 848.
 α -iodo- (*crotonylic iodide*), and its polymeride (CHARON), A., i, 848.
- Butylenedicarboxylic acids**. See:—
 Methylmesaconic acid.
 Methylitaconic acid.
 Pyrocinchonic acid.
- iso-Butylenic bromide** (MOUNEYRAT), A., i, 787.
- $\alpha\gamma$ -glycol, $\beta\beta$ -bromonitro- (MAAS), A., i, 322.
 nitrosate (DEMJANOFF), A., i, 845.
- iso-Butylenetricarboxylic acid** (*hexanetricarboxylic acid*), and salts (FITTIG and THRON), A., i, 337.

- β*-iso-Butylglutaric acid** (*heptanedicarboxylic acid*) (KNOEVENAGEL), A., i, 116.
- n*-Butylic alcohol**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 critical temperature of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
 aluminium derivative of (TISTSCHENKO), A., i, 408.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 670.
- n*-Butylic alcohol, $\beta\gamma$ -dibromo-** (CHARON), A., i, 848.
- iso*-Butylic alcohol**, dielectric constant of, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
 and its benzenesulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
 action of phosphorus tribromide on (MENSCHUTKIN), A., i, 937.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 670.
- sec*-Butylic alcohol** (*methylethylcarbinol*), action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
- tert*-Butylic alcohol** (*trimethylcarbinol*), heat of combustion of (ZOUBOFF), A., ii, 589.
 effect of pressure of melting point curve of (TAMMANN), A., ii, 636.
 depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 670.
 phenylurethane of (LAMBLING), A., i, 53.
- Butylic alcohols**, electrical dispersion of (LÖWE), A., ii, 201.
- n*- and *iso*-Butylic amylc ethers**, density, specific rotation and molecular volume of (FRANKLAND), T., 360.
- iso*-Butylic bromide**, action of bromine on, in presence of aluminium bromide and chloride (MOUNEYRAT), A., i, 786.
 iodide, action of, on zinc ethyl iodide (SIMONOWITSCH), A., i, 471.
- tert*-Butylic hydrogen carbonate** (HEMPEL and SEIDEL), A., ii, 152.
- iso*-Butyrideneacetoacetic acid**, ethylic salt, condensation of, with ethylic malonate (BARBIER and GRIGNARD), A., i, 112.
- iso*-Butyrideneacetone**, from condensation of *isobutaldehyde* with acetone, and its oxime (FRANKE and KOHN), A., i, 11.
- iso*-Butyrideneazine**, and its hydrochloride; also the action of potash on the latter (FRANKE), A., i, 247.
- iso*-Butyridenebismalonic acid** (*hexanetetracarboxylic acid*), ethylic salt (KNOEVENAGEL), A., i, 116.
- Butyridenecyanhydrins**. See α -Hydroxy-*n*-valeronitrile and α -Hydroxy*iso*-valeronitrile.
- iso*-Butylitaconic acid**, and its conversion into *isobutylparaconic acid*; also its reduction (FITTIG and SCHIRMACHER), A., i, 338.
 oxidation of (FITTIG and KAEHL-BRANDT), A., i, 418.
- Butylmalonic acid**, and its potassium salts, heats of solution and formation of (MASSOL), A., ii, 547.
- iso*-Butylmesaconic acid**, and its conversion into *isobutylitaconic acid* (FITTIG and SCHIRMACHER), A., i, 338.
 oxidation of (FITTIG and KAEHL-BRANDT), A., i, 118.
- iso*-Butyl- β -naphthylc methylic ether** (CAHEN), A., i, 617.
- Butylnitramine**, action of sulphuric acid on (FRANCHIMONT and UMBGROVE), A., i, 106.
- iso*-Butyloxychlorophosphine** (GUICHARD), A., i, 564.
- iso*-Butylparaconic acid**, formation of (FITTIG and SCHIRMACHER), A., i, 338.
- iso*-Butylisoparaconic acid**, and its bromo-derivative (FITTIG and ERLENBACH), A., i, 339.
- Butylphenol**, synthesis of (GUREWITSCH), A., i, 880.
- p*-iso-Butylphenylglyoxylic acid** (VERLEY), A., i, 425.
- iso*-Butylphosphinic acid and *iso*-Butylphosphinous acid** (GUICHARD), A., i, 564, 565.
- Butylphthalimide**, δ -bromo- (GABRIEL and MAASS), A. i 595.

- iso*-Butylpyruvic acid, and its phenylhydrazones (FITTIG and KAEHLBRANDT), A., i, 118.
- iso*-Butylsuccinic acid (*hexanedicarboxylic acid*), formation of (FITTIG and THRON), A., i, 337.
- and its oxidation (FITTIG and BURWELL), A., i, 337.
- and its paratolilic acid and paratolil (HJELT), A., i, 332.
- sec*-Butylthiocarbamide (GADAMER), A., i, 534.
- sec*-Butylthiocarbimide, from essential oil of *Cochleria officinalis* (GADAMER), A., i, 534.
- iso*-Butylthiochlorophosphine (GUICHARD), A., i, 564.
- iso*-Butylthiophosphinic phenylhydrazide (GUICHARD), A., i, 565.
- tert*-*p*-Butyltoluene, preparation of, and dinitro- (VERLEY), A., i, 424.
- iso*-Butylxanthic acid, potassium salt, electrolysis of solution of (SCHALL and KRASZLER), A., i, 414.
- iso*-Butyraldol, action of hydrazine hydrate on (FRANKE), A., i, 247.
- Butyramide and *iso*-Butyramide, preparation of (ASCHAN), A., i, 14.
- Butyramidoazobenzene, α -bromo-, and its lactyl derivative (BISCHOFF and KAISERSTEIN), A., i, 231.
- iso*-Butyramidoazobenzene, α -bromo- (BISCHOFF and SOBOLEWSKI), A., i, 231.
- Butyric acid, physical constants of (SCHEIJ), A., i, 668.
- diffusion velocity and association of (HÜFNER), A., ii, 9.
- amylic salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.
- l*-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
- ethoxyphenylic salt (MERCK), A., i, 802.
- separation of acetic, formic, and propionic acids from (HABERLAND), A., ii, 531.
- separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Butyric acid, α -bromo-, ethylic salt, action of benzylaniline and diphenylamine on (BISCHOFF), A., i, 125.
- action of sodium butoxides, *iso*-amyloxide, octyloxide, *iso*-capryloxide, methoxide, ethoxide, and *n*- and *iso*-propoxides on (BISCHOFF), A., i, 669, 670.
- α -, β -, and γ -chloro-, methylic, allylic, and propylic salts of (HENRY), A., i, 255.
- Butyric acid, β -chloro-, ethylic salt (HENRY), A., i, 257.
- β -*γ*-dichloro-, and its ethylic salt and nitrile (LESPIEAU), A., i, 790.
- $\alpha\alpha\beta$ -trichloro-, electrolysis of (TROEGER and EWERS), A., i, 667.
- iso*-Butyric acid (*dimethylacetic acid*), depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
- silver salt, solubility of (ARRHENIUS), A., ii, 360.
- benzylic salt (BODROUX), A., i, 678.
- ethylic salt, velocity of formation and hydrolysis of (SUNBOROUGH and LLOYD), T., 474; P., 1899, 3.
- separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- iso*-Butyric acid, α -bromo-, ethylic salt, velocity of formation and hydrolysis of (SUDBOROUGH and LLOYD), T., 474; P., 1899, 3.
- action of benzylaniline and diphenylamine on (BISCHOFF), A., i, 125.
- action of sodium butoxides, *iso*-amyloxide, octyloxide, and *iso*-capryloxide on (BISCHOFF), A., i, 670.
- condensation of, with ethylic acetoacetate, methylacetoacetate, malonate, methylmalonate, and cyanacetate (BONE and SPRANKLING), T., 847.
- action of the sodium derivatives of ethylic malonate and ethylic cyanacetate on (BONE), P., 1899, 5.
- action of sodium methoxide, ethoxide, and *n*- and *iso*-propoxides on (BISCHOFF), A., i, 669.
- iso*-Butyric chloride, action of zinc ethyl on (PONZIO and DE GASPARI), A., i, 252.
- iso*-Butyroanilide, α -bromo- (BISCHOFF), A., i, 278.
- n*- and *iso*-Butyrobenzylamide, α -bromo- (BISCHOFF and TSCHUNKEW), A., i, 277.
- n*- and *iso*-Butyrobenzylanilides, α -bromo- (BISCHOFF), A., i, 126.
- n*- and *iso*-Butyrodiphenylamides, α -bromo- (BISCHOFF), A., i, 126.
- Butyrodiphenylhydrazide, α -bromo- (BISCHOFF), A., i, 278.
- Butyrolactone, from reduction of β -aldehydopropionic acid (PERKIN and SPRANKLING), T., 17.
- n*- and *iso*-Butyro-*o*-nitranilides, α -bromo- (BISCHOFF and PÄPKE), A., i, 278.

n- and *iso*-Butyro-*m*-nitranilides, α -bromo- (BISCHOFF and WATSCHJANZ), A., i, 278.

n- and *iso*-Butyro-*p*-nitranilides, α -bromo- (BISCHOFF and HIRSCHFELD), A., i, 278.

Butyronitrile (*propylic cyanide*), conductivity of electrolytes in (DUTOIT and FRIDERICH), A., ii, 350.

γ -bromo-, γ -chloro-, and γ -iodo- (HENRY), A., i, 183.

γ -chloro-, action of potash on (HENRY), A., i, 257, 675.

nitro-, and action of hydrochloric acid on it (HENRY), A., i, 251.

iso-Butyrophenyldiazide, preparation of (LEIGHTON), A., i, 51.

n- and *iso*-Butyropiperidides, α -bromo- (BISCHOFF and HOLM), A., i, 230.

n- and *iso*-Butyryl-*m*-toluidides and -*m*-xylidides, α -bromo- (BISCHOFF and PÄPKE), A., i, 278.

Butyrylcarbazole, α -bromo- (BISCHOFF and KARUKOWSKI), A., i, 231.

iso-Butyryl-*p*-cymene, preparation of (VERLEY), A., i, 434.

n- and *iso*-Butyrylmalic acids, ethereal salts, specific rotations and molecular volumes of (FRANKLAND), T., 348, 352.

iso-Butyrylmalonic acid, ethylic salt (KNOEVENAGEL and FABER), A., i, 146.

Buxine, crystallisation of (SCHOLTZ), A., i, 92.

C.

Cacao butter, adulteration of (LEW-KOWITSCH), A., ii, 712.

Cacothelin. See Bidemethylnitrobrucine hydrate.

Cadinene, from oil of *Angostura* bark (BECKURTS and TROEGER), A., i, 65.

Cadmium, potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.

boiling point and latent heat of vapourisation of, and chloride, and bromide, latent heats of fusion of, and melting and boiling points of chloride (WEBER), A., ii, 725.

heat of vaporisation of (SUTHERLAND), A., ii, 7.

heat of amalgamation of (RICHARDS and LEWIS), A., ii, 267.

in copper or silver precipitated by its use (SHENGLE and SMITH), A., ii, 749.

action of, on sulphuric acid (ADIE), P., 1899, 133.

action of sulphuric and sulphurous acids on (BERTHELOT), A., ii, 283.

Cadmium amalgams of different concentrations, electromotive force between (CADY), A., ii, 395.

Cadmium salts, diffusion of light by solutions of (SPRING), A., ii, 585.

absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.

reduction of, by calcium carbide; alloys with calcium (TARUGI), A., ii, 749.

haloid, solubility of, in alcohols (ROHLAND), A., ii, 144.

Cadmium antimonate (SENDERENS), A., ii, 557.

pyroarsenite (REICHARD), A., ii, 23.

bromide, molecular refraction and density of solutions of (HALLWACHS), A., ii, 462.

hydrates of (DIETZ), A., ii, 221.

double ammonio-compounds of, with mercuric cyanide (VARET), A., i, 99.

chloride, spark-spectrum of (DE GRAMONT), A., ii, 137.

transference ratio of, with various septa (BEIN), A., ii, 399.

molecular weight of, in urethane (CASTORO), A., ii, 360.

hydrates of (DIETZ), A., ii, 221.

ammoniacal, dissociation pressures of (LANG and RIGAUT), T., 883; P., 1899, 182.

potassium chloride, conductivity of aqueous solutions of (JONES and OTA), A., ii, 587.

strontium chloride, and barium, potassium or sodium bromides, conductivities of solutions of (JONES and KNIGHT), A., ii, 628.

iodide, molecular refraction and density of solutions of (HALLWACHS), A., ii, 462.

spark spectrum of (DE GRAMONT), A., ii, 137.

conductivity of, in organic solvents (DUTOIT and FRIDERICH), A., ii, 351.

solubility of (DIETZ), A., ii, 221.

double ammonio-compound of, with mercuric cyanide (VARET), A., i, 99.

reactions of, in ethylic acetate (NAUMANN), A., ii, 423.

lead iodide (MOSNIER), A., ii, 222.

molybdiodate (CHRÉTIEN), A., ii, 363.

nitrate, hydrates of (FUNK), A., ii, 209.

oxide, apparent volatility of (RICHARDS), A., ii, 101.

sulphate, boiling point of solutions of, containing sodium chloride (GORDON, HENDERSON, and HARRINGTON), A., ii, 141.

- Cadmium sulphate**, densities of solutions of (BARNES and SCOTT), A., ii, 406.
 potassium *paratungstate* (HALLOPEAU), A., ii, 160.
- Cadmium organic compounds** :—
 autipyrine salicylate (SCHUYTEN), A., i, 306.
 azoimide, and its pyridine compound (CURTIUS and RISSOM), A., ii, 92.
 phenylhydrazine dithionate and thio-sulphate (MOITTESSIER), A., i, 688.
 pyridine and quinoline, salts (REITZENSTEIN), A., i, 163.
 tripyridine sulphate dihydrate (REITZENSTEIN), A., i, 162.
- Triethylenediaminecadmium salts** (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.
- Cadmium, detection, estimation, and separation of** :—
 detection of copper in presence of (TREY), A., ii, 182.
 estimation of silver and mercury in presence of (KOLLOCK), A., ii, 811.
 precipitation of, by hydrogen sulphide (MELDRUM), A., ii, 812.
 separation of antimony and arsenic from (ATRINSON), A., ii, 615.
 separation of copper from (BORNE-MANN), A., ii, 813.
 separation of iron from (STORTEN-BEKER), A., ii, 126.
 separation of mercury from (JANNASCH and DEVIN), A., ii, 59.
- Cadmium-boracite**, containing iodide (ALLAIRE), A., ii, 156.
- Cadmium-cell**, electromotive force of (KAHLE), A., ii, 348.
- Cæsium**, preparation of (ERDMANN and MENKE), A., ii, 483.
 specific gravity of (MENKE), A., ii, 483.
 ion, velocity of, in flames (WILSON), A., ii, 723.
- Cæsium azoimide** (CURTIUS and RISSOM), A., ii, 92.
*di*fluoriodate (WEINLAND and LAUENSTEIN), A., ii, 364.
*mono*fluorophosphate, *di*fluorodisulphate, and *mono*fluorodithionate (WEINLAND and ALFA), A., ii, 595.
 selenibromide (LENHER), A., ii, 19.
 silicate, hydrolysis of, in aqueous solution (KAHLENBERG and LINCOLN), A., ii, 95.
 sulphate crystals, thermal expansion of (TUTTON), A., ii, 630.
 iron alum and cobalt alum (HOWE and O'NEAL), A., ii, 103.
 manganese alum (PICCINI), A., ii, 367.
- Cæsium persulphate**, preparation and solubility of (FOSTER and SMITH), A., ii, 747.
- Caffeine**, properties of (TASSILLY), A., i, 174.
 derivatives, distinction of, from theobromine derivatives (BRUNNER), A., i, 306.
 fate of, in the living body (ALBANESE), A., ii, 777.
 estimation of (BRUNNER and LEINS), A., ii, 261; (LADD), A., ii, 262; (GADAMER), A., ii, 390.
 estimation of, in coffee (TASSILLY), A., ii, 134.
 separation of theobromine from (BRUNNER and LEINS), A., ii, 261.
- allo*-Caffeine, conversion of, into *allo*-caffuric acid (TORREY), A., i, 86.
- allo*-Caffuric acid and its decomposition products (TORREY), A., i, 86.
- Caladium bulbosum*, constituents of (HÉBERT), A., i, 240.
- Calamine**, from Arkansas (MILLER), A., ii, 761.
- Calcium**, preparation of (LENGYEL), A., ii, 218.
 properties of (MOISSAN), A., ii, 153.
 heat of combustion of (DITTE), A., ii, 426.
- Calcium alloys**, formed by reduction of metallic salts by calcium carbide (TARUGI), A., ii, 749.
 with bismuth, magnesium, zinc, nickel, tin, and mercury (MOISSAN), A., ii, 153, 154.
- Calcium amalgams** (FERÉE), A., ii, 155.
 of different concentrations, electromotive force between (CADY), A., ii, 394.
- Calcium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
 agents for removing, from natural waters (GRIFFIN), A., ii, 655.
 relation of, to fibrin formation (HAMMARSTEN), A., ii, 776.
- Calcium ammonia**, and calcamide (MOISSAN), A., ii, 153, 154.
 antimonate (SENDERENS), A., ii, 557.
 arsenide (LEBBAU), A., ii, 288.
 azoimide (CURTIUS and RISSOM), A., ii, 92.
 boride (MOISSAN), A., ii, 154.
 bromide, spark-spectrum of (GRAMONT), A., ii, 137.
 carbide, formation of (MOISSAN), A., i, 241.
 colour of (MOISSAN), A., ii, 219.
 impurities in, silicide (LE CHATELIER), A., ii, 219.

- Calcium carbide**, action of water on (MOISSAN), A., ii, 155.
 reducing action of, on copper oxide, and on metallic salts (TARUGI), A., ii, 749.
 carbonate, in the efflorescence on walls (VAN ERP), A., ii, 96.
 reduction of, by aluminium (FRANCK), A., ii, 102.
 estimation of, in marl and in soil (MAYER), A., ii, 385.
 hydrogen carbonate (KIPPENBERGER; TREADWELL), A., ii, 220.
 action of, on alkali sulphate (VATER), A., ii, 109.
 chlorate, electrolytic formation of (OETTEL), A., ii, 219; (FOERSTER and YORRE), A., ii, 280.
 subchloride (MOISSAN), A., ii, 154.
 chloride, transference ratio of, with various septa (BEIN), A., ii, 399.
 electrolysis of aqueous solutions of (BISCHOFF and FOERSTER), A., ii, 89.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 hydrated, effect of pressure on melting point curve of (TAMMANN), A., ii, 636.
 thermal change on diluting a saturated solution of (POLLOK), P., 1899, 8.
 contraction of aqueous solutions of, on dilution (WADE), T., 270; P., 1899, 8.
 absorption of water vapour by (BUSNIKOFF), A., ii, 361.
 chloraluminat (FRIEDEL), A., ii, 366.
 ammonium chloride, dissociation of, change of entropy in (MATIGNON), A., ii, 273.
 uranium chloride and bromide (ALOV), A., ii, 556.
 hydride, preparation and properties of (MOISSAN), A., ii, 25; (LENGYEL), A., ii, 218.
 sulphide, phosphide, arsenide, antimonide, and silicide, from metallic calcium (MOISSAN), A., ii, 153.
 hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 solubility of, in solutions of ammonium chloride (NOYES and CHAPIN), A., ii, 405.
 iodate, crystalline (SCHULTEN), A., ii, 161.
 subiodide (MOISSAN), A., ii, 154.
 lead iodide (MOSNIER), A., ii, 222.
 molybdiolate (CHRÉTIEN), A., ii, 363.
 nitrate, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
- Calcium nitride** (MOISSAN), A., ii, 154; (FÉRÉE), A., ii, 155.
 hyponitrite, and hyponitrosoacetate, constitution of (DIVERS), T., 117; P., 1898, 224.
 oxide (*lime*), caustic, in ancient masonry (ARTH), A., ii, 483.
 amount of, in Egyptian porcelain (LE CHATELIER), A., ii, 751.
 heat of formation of (MOISSAN), A., ii, 352.
 hydration of, and heat of dissolution in hydrochloric acid (GAUTIER), A., ii, 399.
 influence of a third substance on the hydration of (ROHLAND), A., ii, 596.
 solubility of, in water at different temperatures (HERZFELD), A., ii, 25.
 solubility of, in water and in sugar solutions (WEISBERG), A., ii, 748.
 solubility of, in aqueous solutions of sodium or potassium chloride (CABOT), A., ii, 25.
 absorption of nitrogen by mixtures of magnesium, sodium, or lithium, and (HEMPFEL), A., ii, 594.
 estimation of, in soils (MAXWELL), A., ii, 521.
 estimation of carbonic anhydride in (SCHENKE), A., ii, 809.
 phosphate, solubility of, in water, and in water saturated with carbon dioxide (JOFFRÉ), A., ii, 419.
 rate of filtration of water or alcohol through (HAUSSER), A., ii, 277.
 reduction of, by aluminium (FRANCK), A., ii, 102.
 reduction of, by the carbon of the electric arc (RENAULT), A., ii, 419.
 hydrogen phosphate, preparation of (BARILLÉ), A., ii, 97.
 dihydrogen phosphate, decomposition of, by water at 100° (VIARD), A., ii, 26.
 phosphide, preparation and properties of (MOISSAN; RENAULT), A., ii, 418, 419.
 metaplumbate, and *per*plumbate (KASSNER), A., ii, 657.
 zinc silicate from New Jersey (WOLFF), A., ii, 435.
 silicide (LE CHATELIER), A., ii, 219.
 sulphate, action of, on halogen alkali salts (DITTE), A., ii, 289.
 sulphide, crystalline (MOURLOT), A., ii, 97.
 phosphorescence of (MOURELO), A., ii, 420.
 potassium *per*tantalate (MELIKOFF and PISSARJEWSKY), A., ii, 491.

Calcium organic compounds :—

acetylide, ammonio-compound of (MOISSAN), A., i, 241.
 citrate, analysis of (SOLDAINI and BERTÈ), A., ii, 820.
 ethoxide, formation of (MOISSAN), A., ii, 155.

Calcium, estimation and separation of:—

estimation of, in ashes (HAYWOOD), A., ii, 612.
 estimation of, in presence of strontium and barium (KNOBLOCH), A., ii, 182.
 separation of, from barium and strontium in mixed sulphates, theory of (MORGAN), A., ii, 627.
 separation of manganese and magnesium from (VILLIERS), A., ii, 523.
 separation of phosphates from (ANTONY and MONDOLFO), A., ii, 330.

Calluna vulgaris, presence of quercetin in: its dyeing and tanning properties (PERKIN and NEWBURY), T., 837; P., 1899, 199.

Calycin, and its presence in various lichens, its potassium, acetyl, and decomposition derivatives (HESSE), A., i, 385.

Calycium chrysocephalum, constituents of (HESSE), A., i, 385.

***w*-Camphanamide**, π -bromo- (KIPPING), T., 142; P., 1898, 250.

Camphanemorpholine and its derivatives (KNORR), A., i, 784.

Camphanic acid, π -bromo-, methylic salt (KIPPING), T., 138, 143; P., 1898, 250.

***cis*- π -Camphanic acid**, two isomeric α -hydrindamine salts of (KIPPING), P., 1899, 173.

Camphene, in oil of rosemary (SCHIMMEL and Co.), A., i, 63.

constitution of (MARSH), P., 1899, 54.
 oxidation of, with nitric acid (JAGELKI), A., i, 627.

nitronitrosite and nitrosite (JAGELKI), A., i, 627.

Camphenemorpholine, derivatives of (KNORR and DUDEN), A., i, 783.

Camphenilene and **Camphenilol** (JAGELKI), A., i, 628.

Camphenilone (JAGELKI), A., i, 627; (MAJEWSKI and WAGNER), A., i, 629.

***iso*-Campheniloneoxime**, platinochloride (JAGELKI), A., i, 628.

Camphenilonepinacone (JAGELKI), A., i, 628.

Camphenilylic choride (JAGELKI), A., i, 628.

Camphenylic nitrite (JAGELKI), A., i, 627.

Campheride and triacetyl derivatives (CIAMICIAN and SILBER), A., i, 537.

Camphoantipyrine. See 1-Phenyl-2-methyl-3:4-campho-5-pyrazolone.

Camphosantipyrine. See 1-Phenyl-2-methyl-4:5-campho-3-pyrazolone.

Camphoceanic acid, amide and nitrile (JAGELKI), A., i, 628.

Camphoceanic acid (JAGELKI), A., i, 628.

Camphoic acid (*carboxylapocamphoric acid*) (JAGELKI), A., i, 627.

ψ -Campholactone, behaviour of, towards phosphorus pentabromide (LEES and PERKIN), P., 1899, 24.

α - and β -Campholenamides, oxidation (BLAISE and BLANC), A., i, 820.

Campholene, α -amino- and β -amino-, salts, oxamides, and carbamides (BLAISE and BLANC), A., i, 820.

Campholenic acids, constitution of (BOUVEAULT), A., i, 536.

Campholide, α -bromo-, oxidation of, to homocamphoronic acid; constitution of (LAPWORTH), T., 1137; P., 1899, 203.

*di*bromo-, constitution of (LAPWORTH), T., 1140; P., 1899, 202.

Camphononic acid, phenylhydrazone, *p*-bromophenylhydrazone, semicarbazone (LAPWORTH and CHAPMAN), T., 1000; P., 1899, 160.

Camphoquinone, behaviour of, towards sulphuric acid (MANASSE and SAMUEL), A., i, 300.

Camphor, from cardamoms oil (SCHIMMEL and Co.), A., i, 63.

constitution of (BOUVEAULT), A., i, 536; (NOYES), A., i, 929.

latent heat of fusion of, influence of pressure on (HULETT), A., ii, 469.

vapour pressure of (ALLEN), P., 1899, 135.

volatilisation of, in compressed gases (VILLARD), A., ii, 143.

solubility of, in water and in hydrochloric acid (ISTRATI and ZAHARIA), A., i, 225.

racemisation of (DEBIERNE), A., i, 625.

behaviour of, towards sulphuric acid in acetic anhydride (REYCHLER), A., i, 445.

compounds of, with aromatic aldehydes; molecular refraction and dispersion and specific rotation of (HALLER and MULLER), A., ii, 622.

derivatives of (BLANC), A., i, 442.

Camphor, amino-, melting points of derivatives of (MANASSE), A., i, 300.

salts (DUDEN and PRITZKOW), A., i, 626.

bromo-, behaviour of, towards phosphoric anhydride (MOURET), A., i, 68.

- Camphor**, *α*-*di*bromo-, behaviour of, towards compounds of silver, mercury, and lead (LAPWORTH), T., 1134; P., 1899, 202.
 oxidation of, with nitric acid and silver nitrate (LAPWORTH and CHAPMAN), T., 992; P., 1899, 159.
αα'-*π*-*tri*bromo- (LAPWORTH), T., 573; P., 1899, 61.
π-bromonitro-, cause of mutarotation of (LOWRY), T., 223; P., 1899, 25.
α-chloro-, oxidising action of (VITENET), A., i, 225.
 nitro-, behaviour towards nitrous acid (LOWRY), T., 230.
 normal nitro-, cause of mutarotation of (LOWRY), T., 215; P., 1899, 25.
- Camphor-liniment**, examination of (LEONARD and SMITH), A., ii, 193.
- Camphors** and allied compounds, physical properties of (BRÜHL), A., i, 625.
- Camphorenic acid**, bromo-, from *α*-*di*bromocamphor; constitution of (LAPWORTH), T., 1135, 1138; P., 1899, 202.
- Camphorformaldoxime** and **Camphorparaformaldoxime** (FRANKFORTER and GLASOE), A., i, 713.
- Camphoric acid**, experiments on the synthesis of (AUDEN, PERKIN, and ROSE), T., 909; P., 1899, 162.
 constitution of (BOUVEAULT), A., i, 300, 536; (BLANC), A., i, 443, 926, 928; (BALBIANO), A., i, 537; (NOYES), A., i, 759, 928.
 action of potash on (HOLLEMAN), A., i, 283.
 oxidation of (BALBIANO), A., i, 537, 867.
 phenylic hydrogen, thymylic hydrogen, guaiacylic hydrogen, carvacrylic hydrogen, eugenylic hydrogen, and *β*-naphthyllic hydrogen salts (SCHRUYER), T., 663; P., 1899, 121.
 salyl hydrogen, *m*-nitrophenylic hydrogen, *p*-bromophenylic hydrogen, and 2:4-*di*bromophenylic hydrogen salts (SCHRUYER), T., 667; P., 1899, 121.
- Camphoric acid**, *πw*-*di*bromo-, and anhydride (KIPPING), T., 133; P., 1898, 250.
π-bromo-*w*-chloro-, and anhydride (KIPPING), T., 138; P., 1898, 250.
- Camphorone**, constitution of (HARRIES and MATFUS), A., i, 629.
- Camphoronehydroxylamine** (HARRIES and MATFUS), A., i, 629.
- Camphoronic acid** from camphoronic acid (LAPWORTH and CHAPMAN), T., 1003; P., 1899, 160.
- Camphoronic acid**, methylic dihydrogen salt (ASCHAN), A., i, 69.
- iso*-**Camphoronic acid**, constitution of (PERKIN and THORPE), T., 897; P., 1899, 184.
- Camphoroxime**, *r*-, resolution of; *d*- and *l*-, and their *d*-camphorsulphonates, rotatory power of (POPE), T., 1105; P., 1899, 199.
 acyl derivatives (FRANKFORTER, MAYO, and GLASOE), A., i, 713.
 behaviour of, towards potassium hypobromite (FORSTER), T., 1141; P., 1899, 193.
- Camphoroxime**, chloro- (FRANKFORTER and GLASOE), A., i, 713.
- Camphor-*α*-phenylhydrazone**, desmotropic forms of (BETTI), A., i, 771.
- Camphorquinone**, from nitrocamphor (LOWRY), T., 230.
- Camphorsulphonic acid**, metallic, phenylic, and quinine salts, chloride, amide, anilide, oxime, phenylhydrazone (REYCHLER), A., i, 445.
 bromo-, two isomeric *α*-hydriindamine, salts of (KIPPING), P., 1899, 172.
αα'-*di*bromo-, and salts, chloride, bromide, amide, piperide (LAPWORTH), T., 561; P., 1899, 61.
- d*-**Camphorsulphonic acid**, *d*- and *l*-camphoroxime salts, crystalline form and rotatory power of (POPE), T., 1105; P., 1899, 199.
- i*-*α*-phenethylamine salt, rotatory power of (POPE and HARVEY), T., 1110; P., 1899, 200.
- d*- and *l*-*α*-phenylbenzylmethylallyl-ammonium salts, rotatory power of (POPE and PEACHEY), T., 1128; P., 1899, 192.
- d*- and *l*-tetrahydroquinaldine salts of, and ammonium salt; and *α*-bromo-, *l*-salt, rotatory powers of (POPE and PEACHEY), T., 1067, 1084; P., 1899, 199.
- d*-**Camphorsulphonic acid**, bromo-, *d*- and *l*-tetrahydro-*p*-toluquinaldine salts of (POPE and RICH), T., 1093; P., 1899, 200.
- Camphorsulphonic chlorides**, *d*- and pseudoracemic (KIPPING and POPE), T., 1121; P., 1899, 201.
- α*-**Camphylamine**, action of nitrosyl chloride on (SOLONINA), A., i, 473.
- α*-**Camphylic chloride**, formation of, and the action of bromine and sodium phenoxide on it (SOLONINA), A., i, 473.
 phenylic ether (SOLONINA), A., i, 473.
- Cananga oil** (SCHIMMEL and Co.), A., i, 923.

- Candellaria vitellina* and *C. concolor*, stictaurin from (ZOFF), A., i, 716.
- Cane sugar.** See Sucrose.
- Cannabinol**, and *trinitro-* and *acetyl* derivatives (WOOD, SPIVEY, and EASTERFIELD), T., 20, 21; P., 1898, 153, 185.
- Cannabinolactone**, and amino-, iodo-, oxidation and reduction derivatives (WOOD, SPIVEY, and EASTERFIELD), T., 20; P., 1898, 60, 185.
- Cannabinolactonic acid**, ethylic and potassium salts, and decomposition products (WOOD, SPIVEY, and EASTERFIELD), T., 34, 35; P., 1898, 185.
- Cantharic acid**, constitution of (MEYER), A., i, 380.
- iso-Cantharidic acid* (MEYER), A., i, 380.
- Cantharidin**, isomerides of (MEYER), A., i, 380.
- iso-Cantharidin* (MEYER), A., i, 380.
- Caoutchouc**, action of carbon dioxide, nitrogen, and oxygen on (D'ARSONVAL), A., i, 771.
- vulcanised, estimation of sulphur in (HERTING), A., ii, 804.
- Caoutchouc-milk** (GIRARD: LINDET), A., ii, 507.
- Caparrapi**, oil of, **Caparrapene**, **Caparrapiol** (TAPIA), A., i, 533.
- Caperic acid** from *Platysma glaucum* and *Mycoblastus sanguinaris* (ZOFF), A., i, 716.
- Capric acids.** See Decoic acids.
- Caproic acids.** See Hexoic acids.
- iso-Caprolactone.* See Hydroxyhexoic acid, lactone of.
- Capronitriles.** See Hexonitriles.
- Caprylic acid.** See Octoic acid.
- iso-Caprylic alcohol.* See *iso-Octylic alcohol*.
- Caprylonitrile.** See Octonitrile.
- Capsaicin** and its benzoyl derivative (MICKO), A., i, 716.
- Caramel**, detection of, in spirits and vinegar (CRAMPTON and SIMONS), A., ii, 530.
- estimation of (FRADISS), A., ii, 819.
- Carbamic acid**, benzylic and *p*-nitro-benzylic salts (THIELE and DENT), A., i, 15.
- and nitro-, ethylic lactate and ethylic glycolate compounds of (THIELE and DENT), A., i, 15.
- nitro-, methylic and *p*-nitrobenzylic salts (THIELE and DENT), A., i, 14, 15.
- nitroso-, methylic salt (THIELE and DENT), A., i, 14.
- Carbamide (urea)**, heat of formation of (BERTHELOT), A., ii, 142.
- Carbamide (urea)**, solutions, molecular depression of vapour pressure of (DIETERICI), A., ii, 403.
- contraction of aqueous solutions of, on diluting (WADE), T., 271; P., 1899, 8.
- action of chromic acid and potassium chromate on (OECHSNER DE CONINCK), A., i, 244.
- action of ethylic dioxysuccinate on (GEISENHEIMER and ANSCHÜTZ), A., i, 574.
- nitrous oxide obtained from, by action of hypobromite (RAYLEIGH), A., ii, 744.
- mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
- Carbamides**, formation of (JOUVE), A., i, 420.
- oxidation of (OECHSNER DE CONINCK), A., i, 420.
- thio-, aromatic, preparation of (HUGERSHOFF), A., i, 886.
- ψ -**Carbamides** (SCHMIDT), A., i, 16.
- Carbanil.** See Phenylcarbimide.
- Carbanilide.** See Diphenylcarbamide.
- Carbazinic acids**, diazoles of (BUSCH), A., i, 825.
- Carbazole**, heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- equilibrium between benzene, phenanthrene and (BRUNI), A., ii, 406.
- cryoscopic behaviour of picrates of (BRUNI and CARPENÉ), A., ii, 8.
- Carbethoxydiazohydrate.** See Diazourethane.
- Carbethoxypropionic chloride**, action of zinc methyl on (BLAISE), A., i, 793.
- Carbimide derivatives**, salts of, constitution of (STIEGLITZ), A., i, 359.
- Carbimidoacetyl amylurethane**, and -ethylurethane, thio- (FRERICHS), A., i, 796.
- Carboallylphenylimide**, and its sesquichloride (DAINS), A., i, 593.
- Carboacyclic compounds**, formation of, from 1:5- and 1:6-diketones (WISLICENUS), A., i, 59.
- Carbodiphenylimide**, mono- and di-platinochlorides (DAINS), A., i, 592.
- α -**Carbodiphenylimide** (SCHALL), A., i, 280.
- Carbodi-o-tolylimide** and **Carbodi-p-tolylimide** (DAINS), A., i, 592, 593.
- Carbohydrate** from yeast extract (WRÓBLEWSKI), A., ii, 170.
- Carbohydrate.** See Agricultural chemistry.
- Carbohydrates** of egg-albumin, isolation of the (FRÄNKEL), A., i, 396.

Carbohydrates in monocotyledons, the metabolism of (PARKIN), A., ii, 790.

antiseptic action of (SALKOWSKI), A., i, 724.

action of hydrogen bromide on (FENTON and GOSTLING), T., 423; P., 1899, 57.

action of hydrogen peroxide on, in presence of ferrous salts (MORRELL and CROFTS), T., 786; P., 1899, 99.

oxidation of, by sorbose bacterium (BERTRAND), A., ii, 170.

estimation of (TRAPHAGEN and COBLEIGH), A., ii, 529.

Carbohydrates. See also:—

Adonitol.

Amylodextrin.

Arabinose.

Arabitol

Cane sugar (*sucrose*).

Cellulose.

Dextrin.

Dextrose (*glucose*).

Digitalose.

Digitoxose.

Dulcitol.

Erythritol.

Formose.

Galactose.

Glucose (*dextrose*).

Glycogen.

Gums.

Hederose.

Hexose.

Hydracellulose.

l-Iditol.

Inulin.

Invert sugar.

Lactose.

Laevulose (*fructose*).

Maltodextrin.

Maltose.

Mannitol.

Mannose.

Melibiose.

Melicitose.

Meltrirose (*raffinose*).

Morfose.

Octitol.

Oxycellulose.

Pentosans.

Perseitol.

Raffinose.

Rhamnitol.

Sorbitol.

Starch.

Sucrose (*cane sugar*).

d-Talitol.

Trehalose.

Xylitol.

Xylose.

Carbon, atomic weight of (DEWAR), P., 1898, 175; (BERTHELOT), A., ii, 207.

influence of, on magnetic properties of steel (OSMOND), A., ii, 630.

mode of burning of (DIXON), T., 630; P., 1899, 118.

absorption of hydrogen by (HEMP-TINNE), A., ii, 228.

absorption of hydrogen by, at low temperatures (HEMP-TINNE), A., ii, 146.

decomposition of carbon monoxide in presence of (BOUDOUARD), A., ii, 596.

action of, on dry oxygen or carbon dioxide (DIXON; BAKER), T., 638; P., 1899, 118.

action of, on sulphuric acid (ADIE), P., 1899, 133.

Carbon tetrachloride, boiling points of mixtures of, with acetone or chloroform (HAYWOOD), A., ii, 632.

vapour pressures of mixtures of, in benzene, toluene, or alcohol (LEHFELDT), A., ii, 11.

vapour pressures of solutions of, in benzene or toluene (LEHFELDT), A., ii, 633.

partition of chlorine between water and (JAKOWKIN), A., ii, 736.

Carbon monoxide (*carbonic oxide*), electromotive efficiency of (HOEPER), A., ii, 541.

absorption of, by platinum or palladium, at low temperatures (HEMP-TINNE), A., ii, 146.

the first product of oxidation of carbon (DIXON), T., 639; P., 1899, 118.

combination of, with oxygen at different temperatures (HÉLIER), A., ii, 85.

and oxygen, inflammability of mixtures of, and influence of water vapour on (EMICH), A., ii, 13.

reduction of, by aluminium (FRANCK), A., ii, 102.

effect of silent electric discharge on mixture of, with carbon disulphide (BERTHELOT), A., ii, 648.

action of electric glow discharge on mixture of, with nitric oxide (MIXTER), A., ii, 267.

action of ammoniacal cuprous chloride and amines on (JOUVE), A., i, 420.

decomposition of, in presence of metallic oxides (BOUDOUARD), A., ii, 287, 365, 417, 595, 596.

fate of, in the living body (WACH-HOLTZ), A., ii, 372, 503.

Carbon monoxide (*carbonic oxide*),
 estimation of (SCHLAGDENHAUFEN and PAGEL), A., ii, 384.
 estimation of, by combustion (DENNIS and HOPKINS), A., ii, 332.

Carbon dioxide (*carbonic anhydride*), in
 atmosphere at different altitudes (DE THIERRY), A., ii, 653.
 in moorland waters (ACKROYD), T., 196; P., 1899, 2.
 solid, collection of (HEMPEL), A., ii, 140.
 ionic charges produced in, by Röntgen rays (TOWNSEND), A., ii, 730.
 viscosity of (BREITENBACH), A., ii, 403.
 effect of pressure on melting point curves of (TAMMANN), A., ii, 636.
 diffusion of, through caoutchouc (D'ARSONVAL), A., i, 771.
 invasion and evasion coefficients of, in water, and in aqueous salt solutions (BOHR), A., ii, 641.
 in air, absorption of (LÉVY and HENRIET), A., ii, 94.
 behaviour of, and van der Waals' equation (BOLTZMANN and MACHE), A., ii, 635.
 compressed, volatilisation of iodine in (VILLARD), A., ii, 144.
 compressibility of mixture of, with sulphur dioxide (BERTHELOT and SACERDOTE), A., ii, 404.
 critical temperature of mixtures of, with water (KUENEN and ROBSON), A., ii, 356.
 action of, on hydrazine (DE BRUYN), A., ii, 745.
 decomposition of, in presence of carbon (BOUDOUARD), A., ii, 417.
 combustion of mixtures of, with hydrogen (BERTHELOT), A., ii, 282.
 reduction of, by aluminium (FRANCK), A., ii, 102.
 compounds of, with water, ether, and alcohols (HEMPEL and SEIDEL), A., ii, 151.
 action of, on potassium ferrocyanide (GIGLI), A., ii, 387.
 absorption of traces of, in gaseous mixtures (MARBOUTIN, PÉCOUL, and BOUYSSY), A., ii, 577.
 estimation of (HEMPEL and SCHEFFLER), A., ii, 380.
 estimation of, in minerals (MARSHALL), A., ii, 249.
 estimation of combined, in soils (STUTZER and HARTLEB), A., ii, 521.

Carbon :

Chlorocarbonic acid, benzylic and *p*-nitrobenzylic salts, and the action of ammonia on them (THIELE and DENT), A., i, 15.
 ethylic lactate and ethylic glycolate compounds of (THIELE and DENT), A., i, 15.

Carbonates, analogy of hyponitrites to (DIVERS), T., 124.

Thiocarbonates, synthesis of (KONOWALOFF), A., i, 470.

Carbon oxides and hydrogen, chemical equilibrium between (BERTHELOT), A., ii, 286.

silicide (LE CHATELIER), A., ii, 219.

Carbon disulphide, specific volume of (LEDUC), A., ii, 729.
 viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.
 diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
 solution of, in compressed methane (VILLARD), A., ii, 143.
 and water, mutual solubilities of (HERZ), A., ii, 83.
 influence of moisture on the combustion of; ignition and decomposition temperatures of; action of light on (DIXON and RUSSELL), T., 600; P., 1899, 114.
 absorption of argon by (BERTHELOT), A., ii, 654.
 and benzene, composition of mixed vapours of (CARVETH), A., ii, 467.
 action of chlorine on, in presence of aluminium chloride (MOUNEYRAT), A., ii, 365.
 mixtures of, with hydrogen, nitrogen, argon or carbon monoxide, influence of silent electric discharge on (BERTHELOT), A., ii, 648.
 estimation of (GOLDBERG), A., ii, 333.

Carbon, estimation of:
 combustions of, in a platinum crucible (SHIMER), A., ii, 694.
 estimation of, volumetrically (IMBERT and COMPAN), A., ii, 577.
 estimation of, in iron (SPÜLLER), A., ii, 809.
 estimation of, in cast iron or steel (WDOWISZEWSKI), A., ii, 181.
 estimation of, in iron products (CARNOT and GOUTAL), A., ii, 809.
 estimation of, in organic substances containing nitrogen (TOWER), A., ii, 694.

Carbonyl, and its derivatives, metallic and organic, molecular refraction of (FERREIRA DA SILVA), A., ii, 393.

- Carbonyl chloride**, action of, on hydrazine (DE BRUYN), A., ii, 745.
 sulphide (*carbon oxysulphide*) and monoxide, formed in explosion of carbon disulphide with oxygen (DIXON and RUSSELL), T., 610; P., 1899, 114.
 action of cuprous chloride on (BERTHELOT), A., ii, 287.
- Carbonylamidohydrazopropionic acid**, and its ethylic salt, amide and nitrile (THIELE and BAILEY), A., i, 169.
- Carbonylamidophenol**, 3:5-dibromo-, and its isomeride (MCCOY), A., i, 359.
- Carbonyl- β -o-amidophenyl-benzimidazole**, -*m*-(*p*)-tolimidazole, and Carbonyl- β -o-amido-*p*-tolyl-*m*-(*p*)-tolimidazole (VON NIEMENTOWSKI), A., i, 647.
- Carbonylferrocyanides**, estimation of (MÜLLER), A., ii, 616.
- Carbonyl group**, influence of, on adjacent groups (VORLÄNDER), A., i, 812.
- Carbonylphenylcarbazine acid**, chloro-, ethylic salt of (BUSCH and STERN), A., i, 957.
- iso-Carboxypyrrotritaric acid** (*isodimethylfurfurandicarboxylic acid*), decomposition of (KNORR and CASPARI), A., i, 194.
- Carbostyryl**, absorption spectra and constitution of (HARTLEY and DOBBIE), T., 646; P., 1899, 47.
- α -Carboxy- α' -acetyladipic acid**, $\beta\beta$ -diimino, ethylic salt (TRAUBE), A., i, 192.
- o- and m-Carboxybenzenesulphinic acids** (GATTERMANN), A., i, 517.
- Carboxyapocamphoric acid**. See Camphoric acid.
- Carboxyglutaric acid** (ω, ω_1 -*propanetricarboxylic acid*), ethylic salt and amide (GUTHZEIT and LASKA), A., i, 261.
- Carboxyhæmoglobin**. See under Hæmoglobin.
- 3-Carboxy-2-methylfurfuranacetic acid** and ethylic and hydrogen ethylic salt (FEIST and MOLZ), A., i, 675.
- Carboxyoxalacetic acid**, ethylic salt (BOUVEAULT), A., i, 416.
- o-Carboxyphenylacetic acid** (*Homophthalic acid*), products of action of acetonitrile on (MATHEWS), A., i, 57.
 preparation of, and 4-nitro- (HEUSLER and SCHIEFFER), A., i, 365.
 formation of imide of (*Homophthalimide*), (MATHEWS), A., i, 57.
- 5-Carboxyphenyl-1:3-diphenylpyrazoline** and its sodium salt (HAMBURGER), A., i, 144.
- β -o-Carboxyphenyl- α -ethylpropionic acid** and **β -o-Carboxyphenyl- α -methylpropionic acid** (LANDSBERGER), A., i, 211.
- 3-Carboxyphenyl-5-phenylisooxazoline** (HAMBURGER), A., i, 143.
- Carcenomata**, composition of (PETRY), A., ii, 568.
- Cardamoms oil**, from Malabar, Siam, Cameroon, and Ceylon, components of (SCHIMMEL and Co.), A., i, 63.
 seeds and husks, ash of, and its constituents (YARDLEY), A., ii, 793; (BRIDGES; WILL), A., ii, 794.
- Carnations**. See Agricultural chemistry.
- Carnotite** from Colorado (FRIEDEL and CUMENGE), A., ii, 434.
- cis-Caronic acid** (*cis-dimethylcyclopropane-1:2-dicarboxylic acid*), synthesis of, and its conversion into terebic acid; also its anhydride (PERKIN and THORPE), T., 56; P., 1898, 108.
- trans-Caronic acid** (*trans-dimethylcyclopropane-1:2-dicarboxylic acid*), synthesis of; also its conversion into terebic acid and into *cis*-caronic acid (PERKIN and THORPE), T., 56; P., 1898, 108.
- Carob seed**, albumin of (BOURQUELOT and HÉRISSEY), A., i, 839, 968.
- Carrotene**, presence of, in *Aspidium filix femina* (ÉTARD), A., ii, 792.
- Carpets**, detection of arsenic in (RÖSSLER), A., ii, 530.
- Carvacrol**, from carvone and formic acid (KLAGES), A., i, 624.
 from oil of *Monarda fistulosa* (KREMERS and HENDRICKS), A., i, 770.
 from oil of pepperwort (SCHIMMEL and Co.), A., i, 64.
- Carvacrylglucoside** (RYAN), T., 1056; P., 1899, 196.
- Dd-Carvenolic acid** and **i-Carvenolic acid** (WALLACH), A., i, 532.
- Dl-Carvenolide**, **Ld-Carvenolide**, **i-Carvenolide**, dibromides of (WALLACH), A., i, 532.
- Carvenone**, from dihydrocarvone and formic acid (KLAGES), A., i, 624.
 oxidation of (TIEMANN and SEMMLER), A., i, 224.
- Carvone**, from pinole tribromide and isopinole dibromide (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
- Carvyldioxime**, dibenzoyl derivative; isomeride (HARRIES and MAYRHOFER), A., i, 625.
- Caryophyllene**, nitrosochloride, nitrosate, nitrosite, isonitrosite (or bisnitrosite), nitrobenzylamine and nitro-piperidine (KREMERS, SCHREINER, and JAMES), A., i, 619.

- Cascara sagrada*, constituents of bark (LEPRINCE), A., i, 820.
- Cascarilline** (NAYLOR), A., i, 179.
- Casein**, animal- or vegetable-, absorption spectrum of (BLYTH), T., 1163; P., 1898, 175.
- decomposition products of (COHN), A., i, 315
- fermentation products of (RÖHMANN), A., i, 96.
- first products of the peptic digestion of (SALKOWSKI), A., ii, 567.
- Cassiterite** from Swaziland (PRIOR), A., ii, 434.
- artificial (VOGT), A., ii, 562.
- Castillon elastica*, caoutchouc from (LINDET), A., ii, 508.
- Catechin**, action of sodium on, in alcohol (KUNZ KRAUSE), A., ii, 201.
- Catechol** (*pyrocatechol*, 1:2-dihydroxybenzene), condensation of, with benzoin (JAPP and MELDRUM), T., 1039; P., 1899, 167.
- action of ozone on (OTTO), A., ii, 282.
- action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
- sodium and disodium salts, heats of formation of (DE FORCRAND), A., ii, 589.
- and its isomerides, separation of (CAUSSE), A., i, 363.
- derivatives (COUSIN), A., i, 346.
- acetylenic ether, and dibromide (MOUREU), A., i, 494.
- methylacetylenic ether, and dibromide (MOUREU), A., i, 494.
- ethylenic ether, amino-, and its salts (MOUREU), A., i, 494.
- Catechol-ethylenic-ether-carbinol**, and acetate (MOUREU), A., i, 493.
- Catecholglyoxal** (MOUREU), A., i, 138.
- Catechoylcarboxylic acid** (BOUVEAULT), A., i, 437.
- Cattle**. See Agricultural chemistry.
- Cattleja*, degeneration of (HÉBERT and TRUFFAUT), A., ii, 174.
- Cedar seeds**, composition of the fatty oil of (KRYLOFF), A., ii, 711.
- Cedarite**. See Chemawinite.
- Celadonite** and glauconite, action of reagents on (GLINKA), A., ii, 112.
- Celloxin**, and its decomposition (FABER and TOLLENS), A., i, 854.
- Cells**, oxyphile, action of, on bacilli (HARDY), A., ii, 165.
- Cellulose**, acetylation of (SKRAUP and PREGI), A., i, 852.
- action of nitrogen peroxide and nitric acid on (BUMCKE and WOLFFENSTEIN), A., i, 853.
- oxidation of (ZANOTTI), A., i, 851.
- Cellulose**, digestion of, by a soluble ferment in *Helix pomatia* (BIEDERMANN and MORITZ), A., ii, 166.
- estimation of (LEBBIN), A., ii, 67.
- nitrate (LUNGE and WEINTRAUB), A., i, 559.
- Cements**, action of bacteria on (STUTZER and HARTLER), A., ii, 505; (BARTH), A., ii, 607.
- hydraulic, constitution of (REBUFFAT), A., ii, 289.
- ancient, from Ephesus and Smyrna (DÖRNER), A., ii, 554.
- Cenosite**. See Kainosite.
- Centrifugal machine** for collecting precipitates in quantitative analysis (MEILLÈRE), A., ii, 610.
- Ceratonia siliqua* seed, albumen of (BOURQUELOT and HÉRISSEY), A., i, 839, 968.
- Cereals**. See Agricultural chemistry.
- Cerebro-spinal fluid**, nature of reducing substance in (GUERBET), A., ii, 780.
- Cerin** (ISTRATI and OSTROGOVICH), A., i, 772.
- from cork, and its acetyl and benzoyl derivatives (THOMS), A., ii, 324.
- Cerite**, action of hydrogen sulphide on (DIDIER), A., ii, 596.
- Cerium** in bismutite from Argentina (BODENBENDER), A., ii, 758.
- in didymium from monazite sands (URBAIN), A., ii, 425.
- mineral containing, from Caucasus (TSCHERNIK), A., ii, 668, 669.
- Cerous salts**, oxidation of, in solution of an alkali carbonate (JOB), A., ii, 291.
- oxide, constitution of (WYROUBOFF and VERNEUIL), A., ii, 598.
- Cerosoceric oxide**, its polymerides, and their nitrates and sulphates (WYROUBOFF and VERNEUIL), A., ii, 224.
- solubility of, in nitric acid, influence of didymium or lanthanum oxides on (WYROUBOFF and VERNEUIL), A., ii, 423, 424.
- peroxide (JOB), A., ii, 291.
- didymium, and cerium lanthanum nitrates and sulphates; oxides and their polymerides (WYROUBOFF and VERNEUIL), A., ii, 424.
- per-Ceric carbonate*, and double potassium carbonate (JOB), A., ii, 487.
- tetrachloride*, dipyridine *hexachloride*, diquinoline *hexachloride*, diethylenamine *hexachloride*, potassium and ammonium *hexachlorides* (KOPPEL), A., ii, 98.

Cerium, estimation and separation of:—
 estimation of (WYROUBOFF and VERNEUIL), A., ii, 613.
 estimation of, volumetrically (JOB), A., ii, 334.
 separation of, from lanthanum and didymium, and estimation of (MENGEL), A., ii, 223.
Cerotic acid, separation of, from other fatty acids (HOLZMANN), A., ii, 68.
Cetraria islandica, constituents of (HESSE), A., i, 386.
Cetraric acid, presence of, in *Pertusaria communis* (HESSE), A., i, 383.
Cevadine. See Veratrine.
Cevine, and its sodium and potassium derivatives, hydrochloride and methiodide; physiological action (FREUND and SCHWARZ), A., i, 465.
Chabazite, vapour pressure of (TAMMANN), A., ii, 8.
Chaff. See Agricultural chemistry.
Chalcantite from British Columbia (HOFFMANN), A., ii, 110.
Chalcophyllite from Cornwall (HARTLEY), A., ii, 433.
Chalk. See Agricultural chemistry.
Chalybite in Dutch peat (BEMMELEN), A., ii, 371.
 in Mecklenburg peat (GAERTNER), A., ii, 302.
Charcoal, animal. See Animal charcoal.
Cheese. See Agricultural chemistry.
Cheiranthin from leaves and seeds of wallflower (REEB), A., i, 378.
Chemawinite from Canada (KLEBS), A., ii, 34.
Chemical individual, definition of (WALD), A., ii, 276.
 statics (DUHEM), A., ii, 85.
Chemotaxis in *Paramoecium* (JENNINGS), ii, 440.
Chicory, mixtures of, with coffee, detection of glycerol in (GRÜNHUT), A., ii, 253.
Chili saltpetre. See Sodium nitrate.
Chione glabra, constituents of, and presence of *o*-hydroxyacetophenone in wood of (DUNSTAN and HENRY), T., 67; P., 1898, 220.
Chitin, preparation of, from fungi (TANRET), A., ii, 171.
Chitosamine. See Glucosamine.
Chloral, equilibrium between metachloral and, in presence of water (BANCROFT), A., ii, 411.
 action of bromine and iodine on, in presence of aluminium chloride (MOUNEYRAT), A., i, 247.
Chloral hydrate, latent heat of fusion and crystalline form of (POPE), T., 455.

Chloral hydrate, equilibrium in dissociation of (BANCROFT), A., ii, 411.
Chloralacetone, action of potash and sodium ethoxide on (SALKIND), A., i, 734.
Chloralacetones (GIGLI), A., i, 12.
Chloral-ammonia, molecular weight of (DELÉPINE), A., i, 414.
Chloralcamphoroxime (FRANKFORTER and MAYO), A., i, 713.
Chloranilic acid, cyanamide derivative of, and its potassium salt (IMBERT), A., i, 51.
 compound of, with phenylhydrazine (DESCOMPS), A., i, 205.
Chlorhydrins, aliphatic, action of potassium thiocyanate on (ENGLE), A., i, 3.
Chlorine, atomic weight of (BERTHELOT), A., ii, 207.
 dissociation of (LEDUC), A., ii, 729.
 solutions of, in water, equilibrium in, and conductivity of; partition of, between carbon tetrachloride and water (JAKOWKIN), A., ii, 736.
 inflammability of mixtures of, with hydrogen (EMICH), A., ii, 12.
 organic, presence of, in normal urine (VITALI), A., ii, 41.
Hydrochloric acid (*hydrogen chloride*), pure, preparation of (VANDENBERGHE), A., ii, 150.
 molecular refraction of solutions of (HALLWACHS), A., ii, 462.
 transference ratio of, with various septa (BEIN), A., ii, 399.
 vapour pressures of aqueous solutions of (ALLAN), A., ii, 82.
 densities and refractive indices of solutions of (CONROY), A., ii, 717.
 densities of solutions of (BARNES and SCOTT), A., ii, 406.
 contraction of aqueous solutions of, on dilution (WADE), T., 270; P., 1899, 8.
 affinity constant of, in methylic alcohol or water (MINOZZI), A., ii, 643.
 decomposition of, by oxygen (BERTHELOT), A., ii, 197.
 aminolytic constants of aniline and pyridine in presence of (GOLD-SCHMIDT and SÄLCHER), A., ii, 551.
 action of, on cupric chloride dissolved in ethylic acetate (NAUMANN), A., ii, 423.
 heat evolved in decomposition of potassium cyanide by (BERTHELOT), A., ii, 737.
 action of potassium permanganate on, in presence of catalytic agents (WAGNER), A., ii, 275.

Chlorine :—

Hydrochloric acid, (*hydrogen chloride*),

- inversion of sugar by, in aqueous alcohol (COHEN), A., ii, 275.
- influence of, on hydrolysis of maltose or cane sugar (SIGMOND), A., ii, 146.
- action of, on sulphates, selenates, tellurates, and phosphates (TUNNELL and SMITH), A., ii, 744.
- detection of, in gastric juice (RAIKOW), A., ii, 52.
- estimation of (ULSCH), A., ii, 802.
- estimation of, in stomach contents (LEO), A., ii, 516; (SIRINGO), A., ii, 803.

Chlorides in sea air (GAUTIER), A., ii, 592.

- of the alkalis, electrolysis of (WINTLER), A., ii, 212; (WOHLWILL), A., ii, 213.

- influence of, on the reaction between potassium permanganate and hydrochloric acid (WAGNER), A., ii, 275.
- excretion of, in pneumonia and fevers (HUTCHISON), A., ii, 168.

Chloride of lime. See Bleaching powder.

Hypochlorous acid, preparation of

- (FOERSTER and YORRE), A., ii, 281.
- in solutions of chlorine in water (JAKOWKIN), A., ii, 736.
- stability of solutions of (THOMSEN), A., ii, 476.

Hypochlorites, electrolytic formation of (VAUBEL), A., ii, 88.

Chlorates, electrolytic production of (VAUBEL), A., ii, 88.

- detection of bromates and iodates in presence of (VITALI), A., ii, 803.

per **Chlorates,** electrolytic preparation of (FOERSTER), A., ii, 88.

- detection of, in Chili saltpetre (NYSENS), A., ii, 327.
- estimation of, in alkali nitrates (FOERSTER), A., ii, 57; (FREYTORG), A., ii, 179; (AHRENS and HETT), A., ii, 245; (BLATTNER and BRASSEUR), A., ii, 328.

Chlorine, detection and estimation of:—

- detection of small quantities of bromine in (BAUBIGNY), A., ii, 516.
- estimation of (BOUGAULT), A., ii, 803.
- estimation of, in large quantities of bromine (BAUBIGNY), A., ii, 611.
- estimation of, in presence of bromine and iodine (BAUBIGNY), A., ii, 244.
- estimation of bromine in presence of (BAUBIGNY), A., ii, 516.

VOL. LXXVI. ii.

Chlorine, estimation and separation of:—

- estimation of, in organic substances (LONGHI), A., ii, 328.
- estimation of, in plants (BERTHELOT), A., ii, 327.
- separation of bromine and iodine from (SWINTON), A., ii, 122; (SPECKETER), A., ii, 123; (BAUBIGNY), A., ii, 328.

Chloritoid from Hungary (SZÁDECZKY), A., ii, 497.

Chloroform, purification and preservation of (MASSON), A., i, 786.

- viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.
- diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
- mutual solubilities of water and (HERZ), A., ii, 83.

- method for providing a mixture of, with air in any desired proportion, and its estimation in such mixtures (HARCOURT), T., 1060; P., 1899, 188.

- boiling point curves of mixtures of, with acetone or carbon tetrachloride (HAYWOOD), A., ii, 632.

- boiling points of mixtures of, with alcohol or acetone (THAYER), A., ii, 402.

- boiling point curves of mixtures of, with methylic alcohol (PETTIT), A., ii, 632.

- action of, on aqueous alkali (THIELE and DENT), A., i, 1.

- action of chlorine on, in presence of aluminium chloride (MOUNEYRAT), A., i, 397.

Chloropal from Colorado (HILLEBRAND), A., ii, 564.

Chlorophyll. See Agricultural chemistry.

Chlorosulphonic acid, action of, on the paraffins and other hydrocarbons as a means of purifying the normal paraffins (YOUNG), T., 172; P., 1899, 22.

Chocolate, detection of gelatin in (OUFROY), A., ii, 76.

- estimation of sugar in (CARLES), A., ii, 67; (WOY), A., ii, 187.

Cholesterol, preparation of (BÖMER), A., ii, 191.

- in a waste liquor from beet sugar manufacture (LIFFMANN), A., i, 586.

- heat of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.

- extraction of, from fats (JUCKENACK and HILGER), A., i, 88; (WIRTHLE; FOERSTER), A., ii, 824.

- salts of, in birds' blood (BROWN), A., ii, 311.

- Cholesterol**, amount of, in blood-corpuscles and plasma (HEPNER), A., ii, 311.
 fate of, in the living body (HUMNICKI), A., ii, 780.
 detection of, in fats (KREIS and WOLF), A., ii, 343.
iso-Cholesterol, non-occurrence of, in beetroot-liquors (ANDRLÍK and VOTOČEK), A., i, 157.
- Cholic acid**, heats of combustion, formation, and dissolution of (BERTHELOT), A., ii, 726.
 oxidation of (LISSAR-COHN), A., i, 552.
 detection of (GNEZDA), A., ii, 715.
- Choline**, presence of, in *Cascarilla* bark (NAYLOR), A., i, 179.
 presence of, in *Fabiana imbricata* (KUNZ-KRAUSE), A., i, 448.
 presence of, in the intestine (NESBITT), A., ii, 310.
 physiological action of (MOTT and HALLIBURTON), A., ii, 315, 781; (ASHER and WOOD), A., ii, 373.
- Chromite**, origin of, in North Carolina (PRATT), A., ii, 494.
- Chromium** in peat (BASKERVILLE), A., ii, 666.
 anode, solution of, in electrolysis of sodium acetate and acetic acid (HITTORF), A., ii, 724.
 action of, on copper silicide, arsenide, or antimonide (LEBEAU), A., ii, 427.
- Chromium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
 diffusion of light by solutions of (SPRING), A., ii, 585.
- Chromium compounds**, toxic action of on wheat (COUPIN), A., ii, 242.
- Chromium azoimide** (CURTIUS and RISOM), A., ii, 92.
 iron carbide (WILLIAMS), A., ii, 157.
- Chromic chloride**, violet, dissolution of, in water containing chromous chloride (ROHLAND), A., ii, 599.
 influence of, on the reaction between potassium permanganate and hydrochloric acid (WAGNER), A., ii, 275.
- sesquioxide*, occurrence of, in Algerian phosphates (SCHÜLER), A., ii, 335.
 reduction of, by aluminium (FRANCK), A., ii, 103.
tetroxide, hydrates of, and sulphide (BAUGÉ), A., ii, 157.
 phosphate, precipitation of, and detection of, in presence of ferric phosphate (CAVEN and HILL), A., ii, 29.
 silicide (WARREN), A., ii, 158.
- Chromium ammonium alum** (HOWE and O'NEAL), A., ii, 103.
 sulphites, basic (RECOURA), A., ii, 369.
- Chromammonium salts**, constitution of (JØRGENSEN), A., ii, 293.
- Chromic acid**, electrolysis of (BOSE), A., ii, 349.
 oxidation of hydrogen by, influence of sulphuric acid on (REESE), A., ii, 647.
 reduction of, by acetic acid (BASSETT), A., ii, 815.
 compounds of, with titanous acid (BLONDEL), A., ii, 369.
- Chromates**, action of, on acidified iodides (WAGNER), A., ii, 326.
- Chromic acid**, salts of, with tetramethylammonium, trimethylammonium, quinoline, and piperidine (WIEDE), A., i, 244.
- Chromosulphochromic acids** (RECOURA), A., ii, 226.
- Chromous chloride**, action of nitric oxide on (CHESNEAU), A., ii, 661.
 decomposition of water by (BERTHELOT), A., ii, 30.
 lead iodide (MOSNIER), A., ii, 222.
- Chromylamide** (OHLY), A., ii, 754.
- Chromium organic compounds**:—
 Chromoacetic acid, violet and green, and its heat of neutralisation by sodium hydroxide (RECOURA), A., ii, 662, 663.
 Chromodiacetic acid, and its heat of neutralisation by sodium hydroxide (RECOURA), A., ii, 663.
 Chromium *tetroxide* potassium cyanide (WIEDE), A., i, 319.
- Chromium, separation of**:—
 separation of mercury from (JANNASCH and ALFFERS), A., ii, 60.
- Chromogens** of the broad bean (BOURQUELOT and HÉRISSEY), A., ii, 325.
- Chromotropic acid**. See Phenylazo-chromotropic acid.
- Chrysammic acid**, detection of (KREMEL), A., ii, 389.
- Chrysotropic acid**, presence of, in *Fabiana imbricata* (KUNZ-KRAUSE), A., i, 448.
 solution of, in aniline and in pyridine; action of sodium on (KUNZ-KRAUSE), A., i, 201.
- Chrysean**, constitution of (HELLSING), A., i, 563.
- Chrysin**, synthesis of (VON KOSTANECKI and TAMBOR), A., i, 911.
 action of potassium acetate on (PERKIN), T., 441; P., 1899, 66.
- Chrysocolla**, iodine in (DIESELDORFF), A., ii, 760.

- Chrysotile** from Canada (KERSTING), A., ii, 765.
 from Lombardy (BRUGNATELLI), A., ii, 372.
- Cigars and Cigarettes**, amount of nicotine in (SINNOLD), A., ii, 48.
- Cilianic acid** and salts (LASSAR-COHN), A., i, 552.
- Cinchonine** (*cinchine*), sulpho-derivative of (KOENIGS and HÖPPNER), A., i, 88.
- Cinchoninesulphonic acid** (*cinchine-sulphonic acid*) (KOENIGS and HÖPPNER), A., i, 88.
- Cinchona Bark**, estimation of alkaloids in (LENZ), A., ii, 391.
 estimation of the total alkaloids in (EKROOS), A., ii, 74.
- Cinchonic acid** (*quinoline-4'-carboxylic acid*), 4-nitro- (KOENIGS and LOSSOW), A., i, 456.
- Cinchonic aldehyde**, 4-amino- (KOENIGS and LOSSOW), A., i, 456.
- Cinchonicine** and salts (ROQUES), A., i, 177.
- Cinchonidine**, *d*- and *l*-mandelates (MCKENZIE), T., 967.
- Cinchonine**, isomerides of (SKRAUP), A., i, 960.
 molecular transformation of, into α -isocinchonine (SKRAUP), A., i, 961.
 hydrobromide, hydrolytic products of (LOWENHAUPT), A., i, 176.
 hydrochloro-, the hydrolytic products of (SKRAUP), A., i, 963.
 hydriodide, decomposition products of (KOENIGS and HÖPPNER), A., i, 88.
d- and *l*-mandelates (MCKENZIE), T., 966.
 dinitrate (SKRAUP), A., i, 962.
 estimation of, in cinchona bark (LENZ), A., ii, 391.
- allo-Cinchonine**, **apo-Cinchonine**, **apo-iso-Cinchonine**, and **isoapo-Cinchonine**, identity of (SKRAUP), A., i, 960, 961.
- apo-iso-Cinchonine** (LOWENHAUPT), A., i, 177.
- δ -Cinchonine** and hydrobromide (LOWENHAUPT), A., i, 177.
- δ - and ϵ -Cinchonine** (SKRAUP), A., i, 960.
- ϵ -Cinchonine**, and zincchloride and hydrochloride (LOWENHAUPT), A., i, 177.
- ψ -Cinchonine**, identity of, with cinchotine, and preparation (SKRAUP), A., i, 962.
 hydrobromide (LOWENHAUPT), A., i, 177.
- tauto-Cinchonine** and its sulphate and dihydriodide (LOWENHAUPT), A., i, 176.
- α -iso-Cinchonine** and dihydriodide and hydrobromide (LOWENHAUPT), A., i, 177.
- α - and β -iso-Cinchonine** (SKRAUP), A., i, 960.
- Cinchotine**, identity of ψ -cinchonine with (SKRAUP), A., i, 962.
- Cineol**, in cardamoms oil (SCHIMMEL and Co.), A., i, 63.
- Cineolenic acid** and **Cineolic acid**, action of water on (RUPE), A., i, 340.
- Cinnabar** from Servia (RAUŠAR), A., ii, 667.
- Cinnamaldehyde**, condensation of, with anhydrazetonebenzil (JAPP and FINDLAY), T., 1024; P., 1899, 164.
 condensation of, with benzaldehyde (THIELE), A., i, 216.
 hydrosulphonic acids of (TIEMANN and KRÜGER), A., i, 247.
- Cinnamaldehyde-*p*-nitrophenylhydrazone** (HYDE), A., i, 689.
- Cinnamanilide**, acid obtained from, by action of ethylic sodiomalonate (HERRMANN and VORLÄNDER), A., i, 814.
- Cinnamein**, composition of (THOMS), A., i, 715.
- Cinnamene**. See Styrene.
- Cinnamenylsuccinic acid**, and anhydride (THIELE and MEISENHEIMER), A., i, 603.
- Cinnamic acid** (*β -phenylacrylic acid*), cryoscopic behaviour of, in phenylpropionic acid (BRUNI and GORNI), A., ii, 731.
 compounds of, with sulphuric acid (HOOGWERFF and DÖRP), A., i, 672.
 action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
 derivatives (VORLÄNDER), A., i, 812.
 ethylic salt, action of ethylic cyanacetate on (THORPE and UDALL), T., 906; P., 1899, 184.
- Cinnamic acid**, α - and β -dibromo-, and their ethylic salts (RUHEMANN and CUNNINGTON), T., 960; P., 1899, 185.
- $\alpha\beta$ -dibromo-**, preparation of *di*bromidone from (LANSER), A., i, 895.
 β -iodo-, and pyridine and silver salts (ORTOLEVA), A., i, 894.
- Cinnamide**, action of bromine on, in presence of sodium methoxide (JEFFREYS), A., i, 731.
- Cinnamo-ethylamide**, -diethylamide, -methylamide, -dimethylamide, -diphenylamide, and -piperidide (HERRMANN and VORLÄNDER), A., i, 813.
- Cinnamoylperuvial** (THOMS), A., i, 715.
- Cinnamylformic acid** (ERLENMEYER), A., i, 601.

- Cinnamylidenanhydrazetonebenzil** (JAPP and FINDLAY), T., 1024; P., 1899, 164.
- Cinnamylidenedimethylcrotonolactone**, and an ammonia additive compound, and imide (THIELE), A., i, 601.
- Cinnamylidenedimethylcrotonolactone-carboxylic acid** (THIELE), A., i, 601.
- Cinnamylidenemalonic acid**, methylic and ethylic salts (THIELE and MEISENHEIMER), A., i, 603.
- Citraconic acid** and its barium salt; also its conversion into itaconic and mesaconic acids (FITTIG and LANGWORTHY), A., i, 332.
- oxidation of (FITTIG and KÖHL), A., i, 418.
- Citral**, history of (TIEMANN), A., i, 247.
- from essential oil of *Lippia citriodora* (BARBIER), A., i, 769.
- in lemon-grass oil (TIEMANN), A., i, 623.
- identity of, with geranial (SEMMLER), A., i, 223.
- sodium hydrogen sulphite compound and mono- and di-hydrosulphonic acids of; also action of semicarbazide on the last (TIEMANN and LEMME), A., i, 248.
- action of acids and soda on; also action of semicarbazide on (TIEMANN), A., i, 250.
- behaviour of, towards sulphuric acid (VERLEY), A., i, 768.
- detection and estimation of; also its semicarbazones (TIEMANN), A., i, 249.
- separation of citronellal from (FLATAU and LABBÉ), A., i, 622.
- separation of citronellal and methylheptenone from (TIEMANN), A., i, 622.
- See also Geranial.
- polymeride of (LABBÉ), A., i, 769.
- Citrals**, isomeric (BOUVEAULT), A., i, 767.
- Citralidenecyanacetic acid** (TIEMANN), A., i, 249.
- d*- and *r*-Citramalic acids (*methylmalic acid*), and the brucine salt and rotatory power of the former (MARCKWALD and AXELROD), A., i, 418.
- Citrapyrotartaric acid**. See Methylsuccinic acid.
- Citrazinic acid**, action of nitrous acid on (SELL and JACKSON), T., 508; P., 1899, 98.
- β*'-nitroso, action of acetyl chloride on (SELL and JACKSON), T., 513; P., 1899, 98.
- Citric acid** and potassium salt, electricity conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
- action of, on metallic iron (ULSCH), A., i, 868.
- mono-alkalisalts of, action of molybdic, tungstic, titanic, and stannic oxides on (HENDESON, ORR, and WHITEHEAD), T., 546; P., 1899, 107.
- ammonium salt, preparation of a neutral solution of (COOK), A., ii, 55.
- cadmium salt, boiling point of solution of, in presence of hydrochloric acid (RICHARDS and HARRINGTON), A., ii, 141.
- copper salt, dissociation of, in solution (CALAME), A., ii, 145.
- double zirconium and ammonium salt (HARRIS), A., i, 262.
- triethyl salt, action of phosphorus trichloride on (HANNA and SMITH), A., i, 577.
- estimation of, in presence of oxalic and malic acids (KISSLING), A., ii, 821.
- Citrine**, colouring matter of (NABL), A., ii, 561.
- Citriodoralddehyde**, from lemon-grass oil (STIEHL), A., i, 66.
- composition of (DOEBNER), A., i, 223.
- identity with citral and *allosemonal* (TIEMANN), A., i, 623.
- Citriodorylidene-acetone** (STIEHL), A., i, 67.
- Citronella**, oil of (SCHIMMEL and Co.), A., i, 298; (FLATAU and LABBÉ), A., i, 534; (FLATAU), A., i, 711.
- Citronellalddehyde**, formation of (TIEMANN), A., i, 191.
- in lemon-grass oil (TIEMANN), A., i, 623.
- action of sulphurous acid on; also its sodium hydrogen sulphite compound, semicarbazone and hydrosulphonic acids (TIEMANN and KRÜGER), A., i, 248.
- separation of citral from (FLATAU and LABBÉ), A., i, 622.
- Citronellamide** (TIEMANN), A., i, 191.
- Citronellie acid**, from reduction of geranic acid (TIEMANN), A., i, 190.
- Citronellonitrile**, action of alkali on (TIEMANN), A., i, 191.
- Citronellylidenecyanacetic acid**, sodium salt (TIEMANN), A., i, 624.
- Citrus bigaradia*, oil of (CHARABOT and PILLET), A., i, 711.
- Citryldiphenylhydrazide**, and diacetyl, dibenzoyl, dibenzoylnitroso, and nitroso-derivatives (MANUELLI and DE RIGHI), A., i, 885.

- Citrylideneacetonitrile** (VERLEY), A., i, 768.
- Citrylideneomalonic acid**, ethylic salt (VERLEY), A., i, 768.
- Citryl- β -naphthacinchonic acids**, formation and melting points of (TIE-MANN), A., i, 248, 249.
- Cladonia rangiferina*, *C. silvatica*, and *C. floerkeana*, constituents of (HESSE), A., i, 381, 386.
- Claviceps purpurea*, the fungose of, and yield of chitin (TANRET), A., ii, 171.
- Clay** with quartz-veins in Brazil (DERBY), A., ii, 501.
from Dublin (O'REILLY), A., ii, 498.
from Hungary (KALECSINSZKY), A., ii, 493.
from Russia (ALEXÉEFF), A., ii, 673;
(THAL), A., ii, 769.
plasticity of (KASAI), A., ii, 435.
- Clover**. See Agricultural chemistry.
- Clupeine**, hydrolytic products of (KOSSEL), A., i, 833.
- Coagulation** of blood, nature of chemical process in (HAMMARSTEN), A., ii, 776.
of blood, action of peptone (THOMPSON), A., ii, 604.
of proteid by electricity (HARDY), A., ii, 567.
- Coal** from Austria (JOHN and EICHLEITER), A., ii, 493.
Canadian (HOFFMANN), A., ii, 110.
from Caucasus, ash of (TSCHERNIK), A., ii, 669.
from Hungary (KALECSINSZKY), A., ii, 493.
containing sulphur or pyrites, products of combustions of (THÖRNER), A., ii, 746.
microscopic examination of (BERTRAND), A., ii, 161.
estimation of sulphur in (HEATH), A., ii, 52; (ANTONY and LUCCHESI), A., ii, 517; (HERTING), A., ii, 804.
- Coal gas**, mixtures of acetylene with, explosibility of (BERTHELOT and VIELLE), A., ii, 412.
- Cobalt**, atomic weight of (RICHARDS and BAXTER), A., ii, 753.
action of, on sulphuric acid (ADIE), P., 1899, 133.
action of, on copper silicide, arsenide, or antimonide (LEBEAU), A., ii, 427.
- Cobalt salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
oxidation of, in presence of alkalis (JOB), A., ii, 61.
- Cobalt salts**, reduction of, by calcium carbide; alloys with calcium (TARUGI), A., ii, 749.
- Cobalt bases**, constitution of (JÖRGENSEN), A., ii, 293.
- Carbonatotetrammincobalt** hydrogen carbonate (MIOLATI), A., ii, 369.
- Dicotri-imino-decamminetetracobalt** salts, and their constitution (WERNER, STEINITZER, and RÜCKER), A., ii, 659.
- Hexammincobalt** chloride and chloropentammincobalt chloride (JÖRGENSEN), A., ii, 226.
- Nitratoimino-hexamminedicobalt** nitrate and chloride (WERNER, STEINITZER, and RÜCKER), A., ii, 658.
- Oxalatodithylenediammincobalt** hydroxide, and its salts (WERNER and VILMOS), A., ii, 660.
- Ozoimino-hexamminedicobalt** salts, and their constitution (WERNER, STEINITZER, and RÜCKER), A., ii, 659.
- Sulphatoimino-octamminedicobalt** chloride and nitrate (WERNER, STEINITZER, and RÜCKER), A., ii, 658.
- Cobalt** antimionate (SENDERENS), ii, 557.
thioantimonite (POUGET), A., ii, 663.
pyroarsenite (REICHARD), A., ii, 23.
azoimide, basic, and potassium and ammonium cobaltoazoimides (CURTIUS and RISSOM), A., ii, 92.
chloride, molecular weight of, in urethane (CASTORO), A., ii, 360.
hydrates of (KUZNETZOFF), A., ii, 658.
iodide, hydrates of (BOLSCHAKOFF), A., ii, 427.
lead iodide (MOSNIER), A., ii, 222.
molybdiodates (CHRÉTIEN), A., ii, 363.
nitrate, hydrates of (FUNK), A., ii, 210.
oxide, decomposition of carbon monoxide in presence of (BOUDOUARD), A., ii, 417, 595.
reduction of, by aluminium (FRANCK), A., ii, 103.
rubidium and caesium alums (HOWE and O'NEAL), A., ii, 103.
sulphide, theory of formation of (MORGAN and GOTTHELF), A., ii, 626.
- Cobalt, organic compounds**:—
Cobalt pyridine salts (REITZENSTEIN), A., i, 161.
thiosulphate phenylhydrazine (MORTESSIER), A., ii, 688.
Compounds of sucrose and dextrose with cobalt (HERZOG), A., ii, 818.

Cobalt organic compound:—

Triethylenediaminecobalt sulphate (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.

Cobalt, detection, estimation, and separation of:—

detection of (PAPASOGLI), A., ii, 335.

detection of, in presence of iron (BETTING), A., ii, 815.

detection of, in presence of nickel (JAWOROWSKI), A., ii, 61.

estimation of silver, gold, and mercury in presence of (KOLLOCK), A., ii, 811.

separation of iron from (BREARLEY), A., ii, 815.

separation of mercury from (JANNASCH and ALFFERS), A., ii, 60.

separation of nickel from (HAVENS; COEHN), A., ii, 127.

Cobalt boracite, containing iodide (ALLAIRE), A., ii, 156.

Cobalt ores, from New South Wales (JAQUET), A., ii, 162.

Cocaine, viscosity of undercooled (TAMMANN), A., ii, 272.

preparation of caffeine and theobromine from, and its composition (SCHWEITZER), A., i, 301.

detection of (VULPIUS), A., ii, 392; (SCHAEFER), A., ii, 715.

MacLagan's reaction for, and the presence of an active base in, and test of purity of (GÜNTHER), A., i, 963.

Coccollic acid, presence of, in *Cladonia Floerkeana* (HESSE), A., i, 382.

Cochineal, use of, in alkalimetry (GLASER), A., ii, 573.

Cochlearia officinalis, oil of (GADAMER), A., i, 534.

Cocoa, analysis of (HEHNER and SKERTCHLY), A., ii, 702.

Cocoanut Oil, detection of, in butter (LEONARD), A., ii, 190.

Codiene, heat of combustion and formation of, and hydrochloride, heat of combination of (LEROY), A., ii, 631.

azoimide (POMMERHNE), A., i, 89.

detection of (MELZER), A., ii, 193.

iso-Codeine (FREUND), A., i, 309.

Coffee, Java (*Coffea arabica* and *liberica*), constituents of (WARNIER), A., ii, 794.

analysis of (HEHNER and SKERTCHLY), A., ii, 702.

artificial coloration of (MORPURGO), A., ii, 135.

estimation of caffeine in (TASSILLY), A., ii, 134; (GADAMER), A., ii, 390.

Coffee-chicory mixtures, detection of glycerol in (GRÜNHUT), A., ii, 253.

Cognac oil (SCHIMMEL & Co.), A., i, 923.

Cohenite, action of cupric ammonium chloride on (COHEN), A., ii, 113.

Coke, action of oxygen and of oxygen containing carbon dioxide or carbon monoxide on (DIXON), T., 632; P., 1899, 118.

estimation of sulphur in (HERTING), A., ii, 804.

α -Collidine. See 2-Methyl-4-ethylpyridine.

β -Collidine. See 4-Methyl-3-ethylpyridine.

γ -Collidine. See 2:4:6-Trimethylpyridine.

Colloidal salts. See Salts.

solutions. See Solutions.

Colloids, formation and structure of (BEMMELEN), A., ii, 12.

evaporation of water from, and absorption of water by (VAN BEMMELEN), A., ii, 84.

Colouring matter of natural waters (SPRING), A., ii, 228.

coal tar, detection of arsenic in (ORTMANN) A., ii, 181.

organic, detection of (ROTA), A., ii, 135.

phenolic, formation of salts by (PERKIN), T., 433; P., 1899, 68.

Colouring matters. See also:—

Acetyl*aposafranine*.

Ælosomin.

Alizarin.

Alizarin yellow A.

Alizarin yellow C. (*gallacetophenone*).

Anilinonaphthaphenosaffranine.

Anilinophenyl*aposafranine*.

Anthragallo.

Anthrapurpurin.

Apigenin.

Apysiopurpurin.

Archil.

Aspidiophyll.

Benzopurpurin.

Benzopurin.

Bilirubin.

Biliverdin.

Bilixanthin.

Brazilin.

Brazilein.

Carrotene.

Chlorophyll.

Chrysin.

Cochineal.

Congo-red.

Colouring matter of Cotton flowers.

Curcumin.

"Diamine pure blue."

Dimethyl~~di~~terbutylindigotin.

Dimethylindigotin.

Dimethylrosinduline.

Dimethyl~~aposafranine~~.

Colouring matters. See:—

Diphenylamine-blue.
 Eosin.
 Erythrolaccin.
 Fisetin.
 Flavaneline.
 Flavescin.
 Gallacetophenone (*alizarin yellow C*).
 Gallein.
 Genistein.
 Gossypetin.
 Hæmatein.
 Hæmatin.
 Hæmatoxylin.
 Hæmoglobin.
 Hesperitin.
 Indigotin.
 Lacmoid.
 Litmus.
 Luteolin.
 Maclurin.
 Melanins.
 Meldola's blue.
 Methylene blue.
p-Methylmalachite-green.
 Methyl-violet.
 Morin.
 Myricetin.
 Naphthaphenosaffranine.
β-Naphtholazo-dyes.
α-Naphtholbenzein.
 Phenolphthalein.
 Phenyl-naphthazonium.
 Phenylphenazonium.
 Phenylaposafranine.
 Phyllotaonin.
 Phylloxanthin.
 Poirrier's blue, C₄B.
 Purpurin.
 Pyrogallolsuccinein.
 Quercetin.
 Rhamnazin.
 Rhamnetin.
 Rhodamine.
 Rosaniline.
 Rosindone.
 Rosolic acid.
 Rottlerin.
apo-Saffranone.
 Santalin.
 Scoparein.
 Scoparin.
 Substance, C₁₈H₁₁O₁₀N₅, from melanin.
 Sulph-hæmoglobin.
 Tetramethylindigotin.
 Thujetin.
 Tropæolin OO.
 Turmeric.
 Vitexin.
 Xanthones.

Colza. See Agricultural chemistry.

Compressibility of liquid sulphur dioxide (LANGÉ), A., ii, 478.
 of mixtures of gases (BERTHELOT), A., ii, 466.
Conchiolin, action of acids on (WETZEL), A., i, 466.
Conductivity, electrical. See under Electrochemistry.
Confluëtin, from *Lecidea confluens* (ZOFF), A., i, 717.
Congo-red, use of, in alkalimetry (GLASER), A., ii, 578.
Conicine, heats of formation, combustion and dissolution of, and of its hydrochloride (BERTHELOT), A., ii, 726.
Conicine-phenylurethane -*α*- and -*β*-naphthylurethanes, and -methoxy-phenylurethane (CAZENEUVE and MOREAU), A., i, 133.
Coniferin, action of moulds on (PURIEWITSCH), A., ii, 683.
Conifer-seeds, presence of a proteid compound of arginine in (SUSUKI), A., ii, 793.
Conifer. See also Agricultural chemistry.
Coniine, actions of carbon bisulphide and of hydrogen sulphide on (MELZER), A., i, 394.
 action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
dithiocarbamate, from action of carbon disulphide on aminopropylvaleraldehyde (MAAS and WOLFFENSTEIN), A., i, 110.
conylthiocarbamate (MELZER), A., i, 394.
 "racemic," molecular refraction of (POPE and PEACHEY), T., 1111.
Constitution, chemical, in relation to taste (STERNBERG), A., ii, 772.
Convicin, from seeds of vetch and *Vicia fabia* (RITTHAUSEN), A., i, 715.
Convolvulus althæoides root, resin of (GEORGIADÈS), A., i, 929.
Convolvulus scoparius, oil of (SCHIMMEL and Co.), A., i, 924.
Copal, discrimination of amber from (RÖSSLER), A., ii, 530.
Copper, "nascent" (COLSON), A., ii, 597.
 native, from the Caucasus (JERMÉEVE), A., ii, 108.
 metallic, occurrence of, in oak-wood (FRANKFORTER), A., ii, 323.
 precipitated by zinc or cadmium, presence of zinc or cadmium in (SHENGLE and SMITH), A., ii, 749.
 colloidal (LOTTERMOSE), A., ii, 558.
 potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.
 action of, on nitric acid (FREER and HIGLEY), A., ii, 480.

Copper, action of hydrogen phosphide on (RUBÉNOVITCH), A., ii, 652.
 action of, on sulphuric acid (ADIE), P., 1899, 133.
 action of sulphuric, sulphurous, or hydrochloric acids on (BERTHELOT), A., ii, 283, 284.
 action of water on (MELDRUM), A., ii, 100.
 action of, on the animal organism (BAUM), A., ii, 167.
Copper alloys with calcium (TARUGI), A., ii, 749.
Copper amalgams of different concentrations, electromotive force between (CADDY), A., ii, 395.
Copper salts, diffusion of light by solutions of (SPRING), A., ii, 585.
 absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
 action of hydrogen phosphide on (RUBÉNOVITCH), A., ii, 652.
 influence of, on hæmoglobin formation (WOLF), A., ii, 231.
 toxic action of, on plants (COUPIN), A., ii, 118.
Copper and copper potassium thioantimonites (POUGET), A., ii, 663.
 haloid salts of, solubility of, in alcohols (ROHLAND), A., ii, 144.
 oxides, hydroxide, and carbonate, action of hydrogen phosphide on (RUBÉNOVITCH), A., ii, 749.
 reduction of, by aluminium (FRANCK), A., ii, 103.
 phosphides (RUBÉNOVITCH), A., ii, 102, 750.
 subphosphide, crystalline (MARON-NEAU), A., ii, 421.
 silicide, arsenide, and antimonide, action of cobalt, nickel, or chromium on (LEBEAU), A., ii, 427.
Cupric salts, action of pyridine on (MOITESSIER), A., i, 808.
 antimonate (SENDERENS), A., ii, 557.
 antimonite (HARDING), A., ii, 490.
 arsenite (REICHARD), A., ii, 23.
 azoimide (CURTIUS and RISSOM), A., ii, 92.
 bromide, double ammonio-compound of, with mercuric cyanide (VARET), A., i, 99.
 lithium bromide, and potassium chloride and bromide (KURNAKOFF and SEMENTSCHENKO), A., ii, 287.
 chlorate and basic chlorate, bromate and basic bromate, nitrate and basic nitrate (BOURGOIS), A., ii, 157.
 chloride, molecular weight of, in urethane (CASTORO), A., ii, 360.

Copper :—

Cupric chloride, reactions of, in organic solvents (NAUMANN), A., ii, 423.
 double ammonio-compound of, with mercuric cyanide (VARET), A., i, 99.
 potassium chloride (GRÖGER), A., ii, 289.
 hydroxide, compounds of, with silver salts (SABATIER), A., ii, 654.
 molybdate (CHÉTIEN), A., ii, 363.
 nitrate, electrolysis of, with copper ferrocyanide membrane (SCHREBER), A., ii, 273.
 mixtures of, with silver nitrate, electrolysis of, application of principle of maximum work to (TOMMASI), A., ii, 412.
 hydrates of (FUNK), A., ii, 210.
 compound of, with hydrazine (HOFMANN and MARBURG), A., i, 488.
 thallium lead, and thallium barium, nitrites (PRZBYLLA), A., ii, 223.
 hydroxide hyponitrite (DIVERS), T., 121 ; P., 1898, 224.
 oxide prepared from nitrate, occluded gas in (RICHARDS), A., ii, 101.
 amount of, in Egyptian porcelain, and in glaze of Egyptian pottery (LE CHATELIER), A., ii, 751.
 and salts, reduction of, by calcium carbide (TARUGI), A., ii, 749.
 influence of, on formation of sodium sulphate (KRUTWIG and DERNONCOURT), A., ii, 214.
 phosphate, and basic phosphate (CAVEN and HILL), A., ii, 29.
 phosphide (RUBÉNOVITCH), A., ii, 652.
 hypophosphite, reduction of, by palladium (ENGEL), A., ii, 750.
 selenate, and basic selenate (METZNER), A., ii, 20.
 sulphate, determination of polarisation in cells containing (HEIM), A., ii, 78.
 thermal change on diluting a saturated solution of (POLLOK), P., 1899, 8.
 action of hydrogen on (COLSON), A., ii, 215.
 potassium sulphate, conductivity of solutions of (MACGREGOR and ARCHIBALD), A., ii, 201.
Cuprosocupric sulphite (PATERNO and ALVIST), A., ii, 17.
Cuprous thioantimonite and pyrothioarsenite (SOMMERLAD), A., ii, 216, 217.

Copper :—

Cuprous chloride, action of carbon oxysulphide on (BERTHELOT), A., ii, 287.

oxide, action of hydrogen phosphide on (RUBÉNOVITCH), A., ii, 652.
estimation of (CAVEN and HILL), A., ii, 59.

Copper organic compounds :—

Copper acetylide, explosion of, in presence of acetylene (FREUND and MAI), A., i, 657.
antipyrine salicylate (SCHUYTEN), A., i, 306.

Cuprous cyanide, formation of (VIT- TENET), A., i, 658.

Copper cyanide, electrolysis of (BAKER), A., ii, 749.
thiocyanomercaptide, and action of hydrochloric and nitric acids on (KÖHLER), A., i, 737.

Cuprotartaric acid, and its potassium, sodium, lead, and silver salts (MASSON and STEELE), T., 725 ; P., 1899, 120.

Diethylenediaminecopper salts (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 857.

Dipyridylcopper salts (BLAU), A., i, 388.

Phenylhydrazine cupro-chloride, -bromide, and -iodide (MOITESSIER), A., i, 807.

Triethylenediaminecopper salts (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.

Copper, detection, estimation, and separation of :—

detection of traces of (BACH), A., ii, 385.

detection of, in mineral waters (GAR- RIGOU), A., ii, 616.

detection of cadmium in presence of (TREY), A., ii, 182.

estimation of, colorimetrically (LUCAS), A., ii, 522.

estimation of, volumetrically (MEADE), A., ii, 58.

estimation of, in grapes, wines, lees, and marcs (VIGNON and BARRIL- LOT), A., ii, 452.

estimation of, in vegetables (LEH- MANN ; VEDRÖDI), A., ii, 59.

estimation of oxygen in (LUCAS), A., ii, 52.

estimation of silver, gold, and mercury in presence of (KOLLOCK), A., ii, 811.

separation of antimony from (LUCAS), A., ii, 523.

separation of antimony and arsenic from (ATKINSON), A., ii, 615.

Copper, separation of :—

separation of arsenic, mercury, and silver from (REVAY), A., ii, 127.

separation of cadmium from (BORNE- MANN), A., ii, 813.

separation of iron from (BREARLEY), A., ii, 815.

separation of iron, lead, tin, and zinc from (LANGMUIR), A., ii, 522.

separation of mercury from (JAN- NASCH and DEVIN), A., ii, 59.

separation of zinc from (DEDERICHS), A., ii, 812.

Copper glance, pseudomorphous, from Altai Mountains (JEREMÉEFF), A., ii, 666.

Copper ores, iodine in (AUTENRIETH ; DIESELDORFF and OCHSENIUS), A., ii, 760.

Copper pyrites, alteration of (JERE- MÉEFF), A., ii, 666.

Copper refining, sediment formed in electrolytic (HOLLARD), A., ii, 452.

Copper-beech. See Agricultural chem- istry.

Coprine chloride. See Trimethylacetyl- ammonium chloride.

Corallin as an indicator (WADDELL), A., ii, 83.

Cordierite from N. Carolina (HIDDEN and PRATT), A., ii, 300.

artificial (MOROZEWICZ), A., ii, 762.

Cork, constituents of (THOMS), A., ii, 324.
presence of cerin and friedelin in (ISTRATI and OSTROGOVICH), A., i, 772.

Cornicularic acid and methylic salts (THIELE and RÖSSNER), A., i, 613.

Cornicularolactone (THIELE and RÖSS- NER), A., i, 613.

Corona, unknown gases in (LOCKYER), A., ii, 717.

Coronium, presence of, in the solfatara of Pozzuoli and Vesuvius (NASINI, ANDERLINI, and SALVADORI), A., ii, 432.

Corpse, strychnine-like alkaloid from a (MECKE and WIMMER), A., i, 311.

Corpuscles, number of red and white, in human blood (SCHWINGE), A., ii, 166.

"*Cortex chinæ succirube*," estimation of the total alkaloids in (EKROOS), A., ii, 74.

Corundum from the Appalachians (LEWIS), A., ii, 561.

artificial (MOROZEWICZ), A., ii, 762.

formation of, in magmas (PRATT), A., ii, 758 ; (MOROZEWICZ), A., ii, 762.

Corundum-pegmatite and -**syenite** from the Urals (MOROZEWICZ), A., ii, 763.

Corydaldine, preparation of (DOBBIE and LAUDER), T., 673 ; P., 1899, 129.

- Corydaldine**, nitroso-, action of sodium hydroxide on (DOBBIE and LAUDER), T., 673; P., 1899, 129.
- Cotoin**, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- Cotton-cake**. See Agricultural chemistry.
- Cotton flowers**, colouring matter of (PERKIN); T., 827; P., 1899, 161.
- Cotton-seed oil**, presence of gossypol in (MARCHLEWSKI), A., i, 821.
- presence of chlorinated, and absence of sulphurised compounds in (RAIKOW), A., ii, 824.
- detection of (SOLTSIEN), A., ii, 823.
- detection of, in butter (LEONARD), A., ii, 190.
- detection of, in lard (BÖMER), A., ii, 259.
- action of silver nitrate on the fatty acids of (CHARABOT and MARCH), A., ii, 618.
- estimation of fatty acids in (TWITCHELL), A., ii, 69.
- iodine number of (ZEGA and MAJSTOROVIC), A., ii, 820.
- Coumaranone**. See Ketocoumaran.
- Coumaric acid**, iodo- (SEIDEL), A., i, 597.
- Coumarin**, formation of (REYCHLER), A., i, 56.
- velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- separation of vanillin from, in flavouring extracts (HESS and PRESCOTT), A., ii, 531.
- Coumarincarboxylic acid**, formation of (KNOEVENAGEL), A., i, 145; (CAJAR), A., i, 147.
- and its ethylic salt (KNOEVENAGEL and HOFFMANN), A., i, 116.
- Covellite** from Montana (HILLEBRAND), A., ii, 302.
- from Sweden (PETRÉN), A., ii, 759.
- Cream**, detection of the previous heating of (STORCH), A., ii, 76.
- See Agricultural chemistry.
- Cream of tartar**, analysis of (LOMBARD), A., ii, 820.
- Creatine**, separation of (LADD and BOTTERFIELD), A., ii, 262.
- Creatinine**, chemical identity of preparations of, from different sources (WÖRNER), A., ii, 438.
- nitroso- (KRAMM), A., i, 85.
- Creosote**, detection of (FONZES-DIACON), A., ii, 388.
- Creseol** (*mercury potassium o-nitro-cresol-p-sulphonate*), GAUTRELET, A., i, 802.
- o-Cresol**, 3:5-dichloro-, constitution of (MARTINI), A., i, 877.
- o-Cresol** and *p*-cresol, action of acetyl-chloroglucose on (RYAN), T., 1056; P., 1899, 196.
- m-Cresol**, 4-bromo-2-amino-, and its diacetyl derivative, 4-bromo-2:6-dinitro-, and trinitro- (KEHRMANN and RÜST), A., i, 130.
- 4-chloro-2-amino-, and its diacetyl derivative, and 4-chloro-*o*-dinitro- (KEHRMANN and TICHVINSKY), A., i, 129.
- p-Cresol**, 3:5-dichloro-, constitution of (BERTOZZI), A., i, 878.
- Cresols**, products of destructive distillation of (MÜLLER), A., i, 27.
- o-Cresolquinone**, *p*-Cresolquinone, and *p*-Cresolphenolquinone (BILTRIS), A., i, 199.
- o-Cresylaniline**, bromo-, and dibromo- (AUWERS and BÜTTNER), A., i, 37.
- o-Cresylic bromide**, bromo-, and dibromo-, derivatives of (AUWERS and BÜTTNER), A., i, 37.
- o-Cresylic methylic ether**, dibromo- (AUWERS and BÜTTNER), A., i, 37.
- o-Cresylpiperidine**, bromo- and dibromo- (AUWERS and BÜTTNER), A., i, 37.
- Critical pressure** of liquid hydrogen (VAUBEL), A., ii, 475.
- Crocidolite** from South Africa (KERSTING), A., ii, 765.
- Cromfordite** from Laurion, Greece (SMITH and PRIOR), A., ii, 433.
- Crotonaldehydepinacone**. See Dipropenyl glycol.
- Crotonic acid**, melting point of, influence of pressure on (HULETT), A., ii, 469.
- β -amino-, ethylic salt, two modifications of (BEHREND), A., i, 331; (KNOEVENAGEL), A., i, 478.
- iso-Crotonic acid**, from decomposition of β -hydroxyglutaric acid (FICHTER and KRAFFT), A., i, 255.
- Crotonic acids**, constitution of (FICHTER and KRAFFT), A., i, 255.
- cryoscopic behaviour of, in butyric acid (BEUNI and GORNI), A., ii, 731.
- Crotonic chloride** and action of alcohol on it (HENRY), A., i, 257.
- Crotonyl-carbamide** and -thiocarbimide (CHARON), A., i, 849.
- Crotonylic bromide** and chloride. See β -Butylene, α -bromo-, and α -chloro-ether (CHARON), A., i, 849.
- iodide. See β -Butylene, α -iodo-.
- iso-Crotonylic bromide**, and the action of sodium on (POGORZELSKY), A., i, 785.
- chloride (JOCITSCH), A., i, 748.
- Crucible**, tube- (MURMANN), A., ii, 122.
- Crucifera** seed. See Agricultural chemistry.

- Cryohydric curve** for mixtures of enantiomorphous isomerides (BRUNI), A., ii, 732.
 mixtures, temperature and composition of (PONSON, A., ii, 634.
- Cryolite**, action of oxalic or tartaric acid, or of steam on (PATERNO and ALVISI), A., ii, 18.
- Cryoscopic behaviour** of picrates (BRUNI and CARPENE), A., ii, 8.
 constants for naphthylamine and diphenylamine (STILLMANN and SWAIN), A., ii, 728.
 measurements (PONSON, A., ii, 546, 728; (RAOULT), A., ii, 590.
 observations, accuracy attainable in (RAOULT), A., ii, 203.
- Crystalline-liquids** (SCHENCK), A., ii, 360; (LE CHATELIER), A., ii, 740.
 dielectric behaviour of (ABEGG and SEITZ), A., ii, 623.
- Crystallisation**, fractional, of mixtures of sodium and potassium salts, from aqueous alcohol (SOCH), A., ii, 84.
 of undercooled liquids (TAMMANN), A., ii, 272.
 velocity of (BOGOJAWLENSKY), A., ii, 206; (TAMMANN), A., ii, 548.
- Crystallography** of iodoform (POPE), T., 46; P., 1898, 219.
 of malates (TRAUBE), A., i, 484.
- Morphotropic relations** of gold tellurides (HOBBS), A., ii, 493.
 of the plagioclase groups (SPENCER and PRIOR), A., ii, 431.
 series among minerals (SPENCER), A., ii, 108.
- Crystallographic relations** of optically active substances (FOCK), A., i, 819.
- Crystals** in blowpipe beads as characteristic of various elements (FLORENCE), A., ii, 51.
 microscopic examination of (SCHRÖDER VAN DER KOLK), A., ii, 16.
- Crystal-volumes** (LINCK), A., ii, 416.
- Cubanite** from Montana (WINCHELL), A., ii, 108.
- Cucumber**. See Agricultural chemistry.
- ψ -Cumenesulphinic acid** (GATTERMANN), A., i, 517.
- ψ -Cumenol carbanilate** (AUWERS), A., i, 343.
 tribromo-, and acetate (AUWERS), A., i, 343.
- Cumenylanilinoacetic acid**, nitrile and amide, and nitroso-derivative of the latter (MILLER, PLÖCHL, and GERNGROSS), A., i, 127, 128.
- Cuminaldehyde** (*cuminol*), condensation of, with anhydrazetonebenzil (JAPP and FINDLAY), T., 1023; P., 1899, 164.
- Cuminic acid** (*o-propylbenzoic acid*), and its chloride, anilide, ureide, amide, thioamide, nitrile, and amino- and nitro-derivatives (GOTTLIEB), A., i, 512.
- Cuminilosazone** (BILTZ and WIENANDS), A., i, 910.
- Cuminphenylhydrazone**, formation of (MILLER, PLÖCHL, and GERNGROSS), A., i, 127.
- Cumynylidenediacetoacetic acid**, ethylic salt (KNOEVENAGEL and FABER), A., i, 146; (KNOEVENAGEL and WEDEMEYER), A., i, 215.
- Cummingtonite** from Brazil (HUSSAK), A., ii, 564.
- ψ -Cumyl hydrosulphide** (COHEN and SKIRROW), T., 892; P., 1899, 183.
- ψ -Cumylene disulphide** (COHEN and SKIRROW), T., 892; P., 1899, 183.
- Cumylideneanhydrazetonebenzil** (JAPP and FINDLAY), T., 1024; P., 1899, 164.
- Cumylidenemalononic acid**, ethylic salt (KNOEVENAGEL and GIESE), A., i, 116.
- Cupric**. See under Copper.
- Cuprite, iodine in** (AUTENRIETH; DIESEL-DORFF; OCHSENIUS), A., ii, 760.
 estimation of traces of iodine in (AUTENRIETH), A., ii, 804.
- Cupro-goslarite** from Kansas (ROGERS), A., ii, 667.
- Cuprous**. See under Copper.
- Curcas oil**, constants of (ARCHBUTT), A., ii, 261.
- Curcumin**, action of potassium acetate on (PERKIN), T., 443.
- Curcumin W**, use of, in alkalimetry (GLASER), A., ii, 573.
- Current-bushes**. See Agricultural chemistry.
- Cyanethine** (4-amino-5-methyl-2:6-diethyl-m-diazine), and **Cyanmethine** (4-amino-2:6-dimethyl-m-diazine), heats of combustion and formation of (LEMOULT), A., ii, 546.
- Cyanoform**, and its salts and alcoholate (HANTZSCH and OSSWALD), A., i, 405.
- Cyanogen**, equivalent of (DEAN), P., 1898, 174.
 action of cuprous chloride on (RA-BAUT), A., i, 557.
 action of electric glow discharge on mixture of, with oxygen (MIXTER), A., ii, 267.
- Hydrocyanic acid**, and mercury salt, constitution of (KIESERITZKY), A., ii, 395.
 effect of pressure on melting point curve of (TAMMANN), A., ii, 636.

Cyanogen:—

- Hydrocyanic acid**, equilibrium between, and other acids, with potash: thermochemistry (BERTHELOT), A., ii, 737.
 equilibrium between silver potassium cyanide, hydrogen sulphide, and (BERTHELOT), A., ii, 422.
 action of cuprous chloride on (RABAUT), A., i, 557.
 mercury salt, electrolytic behaviour of (LEY and KISSEL), A., ii, 485.
- Cyanides**, action of magnesium on (EIDMANN), A., i, 317.
 distinction between oxycyanides and, of mercury (VON PIEVERLING), A., ii, 698.
- Cyanic acid**, heat of formation of (BERTHELOT), A., ii, 142.
- Cyanuramide**, heats of combustion and formation of (LEMOULT), A., ii, 546.
- Cyanur-amido-dihydride**, and-dichloride, -methylamido-dichloride, -ethylamido-dichloride, and -methylamidoethylamide (DIELS), A., i, 406, 407.
- Cyanuric acid**, absorption spectrum and constitution of (HARTLEY), P., 1899, 46.
 stability of, towards alkalis, relative to that of trimethylic isocyanurate (FISCHER), A., i, 262.
 mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
- Cyanuric chloride**, action of ammonia, methylamine, and ethylamine on (DIELS), A., i, 406.
diamino-, action of hydriodic acid on (DIELS), A., i, 406.
hydride, *diamino-*, and its salts and diacetyl derivative (DIELS), A., i, 406.
 identity of, with formoguanamine (DIELS), A., i, 558.
- Cyaphenin**, formation of, from benzimidomethyl ether (WHEELER and JOHNSON), A., i, 431.
- Cydonia vulgaris* seeds, oil of (HERMANN), A., i, 822.
- Cymene**, from lemon-grass oil (STIEHL), A., i, 66.
 from oil of thyme (LABBÉ), A., i, 621.
 melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 absorption of argon by (BERTHELOT), A., ii, 653.
- Cymeneacetophenone**, synthesis of (MEISEL), A., i, 880.
- Cymenecarboxylic acid** [Me : Pr : COOH = 1 : 4 : 2] (BOUVEAULT), A., i, 287.
- iso-Cymenesulphonic acid*, from borneol and sulphuric acid (TOLLOCZKO), A., i, 440.

- Cymodiphenylfurfuran** (JAPP and MELDRUM), T., 1088 ; P., 1899, 167.
- Cymophenone** (BOUVEAULT), A., i, 287.
- Cymyl hydrosulphide** (COHEN and SKIRROW), T., 892 ; P., 1899, 183.
- Cymylglyoxylic acid** and ethylic salt (BOUVEAULT), A., i, 287.
 ethylic salt (VERLEY), A., i, 207, 434.
- p*-**Cymyl methyl ketone**, preparation of (VERLEY), A., i, 207.
- Cynarsin** and its coagulating power (RASETTI), A., i, 395.
- Cyphellium trichiale*, constituents of (HESSE), A., i, 385.
- Cystinuria**, presence of leucine and tyrosine in the urine during (MOREIGNE), A., ii, 317.
- Cytase**, presence of, in liver-secretion of *Helix pomatia* (BIEDERMANN and MORITZ), A., ii, 166.
- Cytisine** (KLOSTERMANN), A., i, 960.

D.

- Dacryodes hexandra*, the oleo-resin of (MORE), T., 718 ; P., 1899, 150.
- Dalton**, presentation of daguerreotype of, P., 1899, 68.
- Damascenine** (POMMERHNE), A., i, 964.
- Damourite** from Bohemia (PREIS), A., ii, 668.
- Daphnetin**, synthesis of (GATTERMANN and KÖRNER), A., i, 364.
- Datolite** from Minnesota (BERKEY), A., ii, 371.
- Datura fastuosa* seeds, amount of fat and hyoscyamine in (VAN DER DRIESSEN MAREEUW), A., i, 829.
- Daviesite** from Chili (ARZRUNI, THADDEEFF, and DANNENBERG), A., ii, 562.
- "**Davyum**," rhodium and iridium in, and non-elementary nature of (MALLET), A., ii, 107.
- β -Decanaphthene** (1 : 3 : 5-dimethylethylcyclohexane ?) and its amino-, bromo-, bromonitro-, chloro-, dichloro-, and nitro-derivatives (MARKOWNIKOFF and RUDEWITSCH), A., i, 581.
- Decanaphthenol** (1 : 3-dimethyl-5-ethylcyclohexane-4-ol) (MARKOWNIKOFF and RUDEWITSCH), A., i, 582.
- Decane** in lignite tar (OEHLER), A., i, 816.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
- Decane**, *di*bromo-, from action of hydrogen bromide on decylenic oxide (WASSILIEFF), A., i, 786.

- Decane**, nitro- (WORSTALL), A., i, 399.
- Decane** (*diisoamyl*), oxidation of, by nitric acid (MARKOWNIKOFF), A., i, 553.
- nitro-, action of stannous chloride on (KONOWALOFF), A., i, 733.
- Decoic acid** (*capric acid*), physical constants of (SCHEIJ), A., i, 668.
- separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Decoic acid** (*isocapric acid*), amide of, preparation of (ASCHAN), A., i, 14.
- Decoic acid** (*divaleric acid*), and its sodium, calcium, and barium salts; also its chloride and amide (GUERBET), A., i, 472.
- Decylenic oxide** (*diamylenic oxide*), and the action of hydrogen bromide on it (WASSILÉEF), A., i, 786.
- Decylic alcohol** (*diamylic alcohol*), and its chloride, acetate, and *isovalerate*; also the action of potassium hydrogen sulphate on it (GUERBET), A., i, 472.
- Dehydrocamphenylic acid** (JAGELKI), A., i, 627; (MAJEWSKI and WAGNER), A., i, 629.
- Dehydromucic acid**, preparation of (HILL and PHELPS), A., i, 576.
- reduction of (HILL and WHEELER), A., i, 576.
- Dehydrotrimethylbrazilone** and acetyl derivative (GILBODY and PERKIN), P., 1899, 27.
- Delphinine**, detection of (MELZER), A., ii, 193.
- Delphinium Staphisagria* seeds, presence of staphisagrine in (AHRENS), A., i, 652.
- Delvauxite** from Bohemia (PREIS), A., ii, 668.
- Denitrification**. See Agricultural chemistry.
- Density** of pulverulent substances, determination of (BREMER), A., ii, 81, 271.
- corresponding with Baumé's hydrometer scale (EMERY), A., ii, 466.
- of aqueous solutions (WADE), T., 255; P., 1899, 7; (BARNES and SCOTT), A., ii, 406.
- maximum, of aqueous solutions of potassium, sodium, lithium, and rubidium chlorides (DE COPPET), A., ii, 590.
- Deoxybenzoin** (*phenyl benzyl ketone*), condensation of, with benzylidene-aniline (FRANCIS), T., 867; P., 1899, 181.
- condensation of, with flavinduline (SACHS), A., i, 239.
- Deoxybenzoin-*o*-dicarboxylic acid**, action of heat on (GABRIEL and LEUPOLD), A., i, 122.
- Deoxycaffeine** (BAILLIE and TAFEL), A., i, 268.
- Deoxycinchonidine methiodide** (KOENIGS and HÖPPNER), A., i, 87.
- Deoxytoluoin** (COLLET), A., i, 56.
- Dephlegmator**, forms of, for fractional distillation (YOUNG), T., 698; P., 1899, 147.
- Desmotroposantonins**, ferric chloride reaction with (BERTOLO), A., i, 931.
- r*- and *l*-**Desmotroposantonins**, acetyl and ethylic derivatives, and reduction to *r*- and *l*-santonous acids (ANDRE-OCCHI and BERTOLO), A., i, 301.
- Desylenebenzylidenacetone** (JAPP and FINDLAY), T., 1026; P., 1899, 164.
- p*-**Desylphenol** (JAPP and MELDRUM), T., 1037; P., 1899, 167.
- Desylthymol**, and acetyl derivatives (JAPP and MELDRUM), T., 1037; P., 1899, 167.
- Dextrin**, formation of, from sucrose-by action of *Aspergillus niger* (TANRET), A., ii, 171.
- formation of furfuraldehyde from (SESTINI), A., i, 103.
- as a reserve material (DU SABLON), A., ii, 444.
- detection of, in albumin (BONNEMA), A., ii, 196.
- estimation of mannose in presence of (BOURQUELOT and HÉRISSEY), A., ii, 817.
- Dextrin**, the stable, and its oxidation, hydrolysis, and constitution; also its relation to the malto-dextrins and soluble starch (BROWN and MILLAR), T., 315; P., 1899, 13.
- nitration and attempted recovery of (BROWN and MILLAR), T., 310; P., 1899, 13.
- Dextrins** of saccharification and their barium compounds (PETIT), A., i, 559.
- estimation of (WARNIER), A., ii, 339.
- Dextrins**. See also:—
- Amylodextrin.
- Maltodextrin.
- Dextrinic acid**, and its hydrolysis, nitration and constitution; also its calcium salt (BROWN and MILLAR), T., 325; P., 1899, 13.
- Dextrose** (*d-glucose*, *grape sugar*), from hydrolysis of dextrinic acid (BROWN and MILLAR), T., 330; P., 1899, 14.
- from acid hydrolysis of maltodextrin and maltodextrinic acids (BROWN and MILLAR), T., 293; P., 1899, 11.

- Dextrose** (*d-glucose*, *grape sugar*), viscosity of undercooled (TAMMANN), A., ii, 272.
 solutions, molecular depression of vapour pressure of (DIETERICI), A., ii, 403.
 cobalt derivatives of (HERZOG), A., ii, 818.
 influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.
 action of various pathogenic bacteria on (HUGOUNENQ and DOYON), A., ii, 377.
 hydrolysis of, with oxalic acid (BROWN and MILLAR), T., 306; P., 1899, 12.
 action of neutral salts on, at higher temperatures (PRINSEN-GEERLIGS), A., i, 101.
 action of yeast-extract and Munich bottom-yeast on (BUCHNER and RAPP), A., ii, 606.
 oxidation of, by hydrogen peroxide (MORRELL and CROFTS), T., 788; P., 1899, 99.
 oxidation of, by sorbose bacterium (BERTRAND), A., ii, 170.
 from diabetic urine, and its osazone (LE GOFF), A., i, 242.
 proof of the presence of, in diabetic urine (PATEIN and DUFAY), A., ii, 375.
 fate of, after injection into the circulation (PARRY), A., ii, 677.
 diastatic formation of, in plants (DU SABLON), A., ii, 239.
 influence of, on growth of *Nostoc* (BOUILLHAC), A., i, 239.
- Dextrose, detection and estimation of:**—
 detection of (GAWALOWSKI), A., ii, 255.
 detection of, in urine (FRÖHLICH), A., ii, 185.
 estimation of (BICKEL; MAQUENNE), A., ii, 529.
 estimation of, volumetrically (GARNIER), A., ii, 701.
 estimation of, as osazone (LINTNER and KROBER), A., ii, 66.
 estimation of, in brewing sugars (MORRIS), A., ii, 187.
 estimation of, in urine (CARPENÉ), A., ii, 66; (SCHLOSSER), A., ii, 185; (LOHNSTEIN), A., ii, 580.
- Diabase** from Minnesota (BERKEY), A., ii, 371.
- Diabetes**, nature of the sugar in the urine of (PATEIN and DUFAY), A., ii, 375.
 pancreatic, causes of (TUCKETT), A., ii, 676.
 phloridzin. See Glycosuria, phloridzin.
- Diacetamidobenzaldehydine** (PINNOW and WISKOTT), A., i, 501.
- Diacetamidobenzophenone** (HEYL), A., i, 216.
- Diacetamidodibenzyl** (THIELE and HOLZINGER), A., i, 438.
- Diacetamidodimethyl-*p*-toluidines** (PINNOW and MATCOVITCH), A., i, 49, 50.
- 2:4'-Diacetaminodiphenyl**, 5-bromo- and 5-chloro- (JACOBSON and STRÜBE), A., i, 273, 274.
- 4:4'-Diacetamidodiphenyl-3:3'-dicarboxylic acid** (BÜLOW and VON REDEN), A., i, 150.
- Diacetamidodixylylphenylmethane**, *p*-nitro- (FRIEDLÄNDER and BRAND), A., i, 351.
- 2:4'-Diacetamido-5-hydroxydiphenyl and -5-ethoxydiphenyl** (JACOBSON and TIGGES), A., i, 275.
- Diacetamidindazole** (BAMBERGER and GOLDBERGER), A., i, 545.
- Diacetamido- β -naphthol** (KEHRMANN and MATIS), A., i, 81.
- Diacetamidophenol** (KEHRMANN and GAUHE), A., i, 28; (KEHRMANN and BAHATRIAN), A., i, 31.
- Diacetamidophenylbenzoxazole** (KYM), A., i, 648.
- Diacetaniside** and *d*-nitro-derivative (STARKE), A., i, 589.
- Diacetoacetic acid**, *dicyano-(aa-diacetyl- $\beta\beta$ -diiminoadipic acid)*, ethylic salt (TRAUBE), A., i, 192.
- Diacetoacetobenzidide**, and *dibromo*-derivative and salts (HEIDRICH), A., i, 366.
- Diacetobenzidine** and its *dichloro*-derivative, action of fuming sulphuric acid on (BAGNALL), T., 279; P., 1898, 182.
- Diacetobenzylideneamidoguanidine** (THIELE and BIHAN), A., i, 47.
- Diacetobisaminoguanidine**, and its hydrochloride, platinohydrochloride, and nitrate (THIELE and DRALLE), A., i, 8.
- Diacetodaphnetin**, synthesis of (GATTERMANN and KÖBNER), A., i, 364.
- Diacetodidesyl-*p*-phenylenediamide** (JAPP and MELDRUM), T., 1045; P., 1899, 169.
- Diacetodimethyltriamidodiphenyl** (JACOBSON and KUNZ), A., i, 275.
- Diacetohydrazide** (STOLLE), A., i, 413; (PELLIZZARI), A., i, 858.
 and its benzylidene derivative (HOFMANN and MARBURG), A., i, 488.
- Diacetomethylxylylenediamide** (PINNOW and OESTERREICH), A., i, 203.
- Diaceto- α -naphthylamide** (BAMBERGER), A., i, 708.
- Diacetophenetidide** (BISTRZYCKI and ULFFERS), A., i, 126.

- Diacetophenyldiaminobenzoxazole** (KYM), A., i, 648.
- Diacetophenylpiperidine bromide** (SCHMIDT), A., i, 5.
- Diacetoxybenzophenonephenylimine** (GRAEBE and KELLER), A., i, 703.
- Diacetoxydiketonaphthadihydropyrazole** (VON PECHMANN and SEEL), A., i, 948.
- $\beta\beta$ -Diacetoxydinaphthalene** (FOSSE), A., i, 529.
- Diacetoxy- $\beta\beta'$ -dipyridylene oxide** (SELL and JACKSON), T., 517; P., 1899, 98.
- 2:4'-Diacetoxyflavone** (VON KOSTANECKI and ODERFELD), A., i, 705.
- 3:2'-Diacetoxyflavone** (VON KOSTANECKI and VON SALIS), A., i, 524.
- 3:4'-Diacetoxyflavone** (VON KOSTANECKI and OSIUS), A., i, 370.
- Diacetoxyindigotin** (MARCHLEWSKI and RADCLIFFE), A., i, 74.
- Diacetoxyethyl ether**, from the action of sodium acetate on *dichlorotrioxymethylene* (GRASSI-CRISTALDI and MASELLI), A., i, 409.
- Diacetoxymorphine** (*heroin*) (WESENBERG), A., i, 650.
- Diacetoxynaphthaquinone** (ZINCKE and OSSENBECK), A., i, 765.
- Diacetoxanthone** (MEYER and CONZETTI), A., i, 763.
- Diacetyl**. See Dimethyl diketone.
- Diacetylacetone**, *dicyano-* (*$\alpha\alpha$ -tetramethyl- $\beta\beta$ -diiminobutane*) (TRAUBE), A., i, 193.
- Diacetylaconitine**, physiological action of (CASH and DUNSTAN), A., ii, 42.
- $\alpha\alpha$ -Diacetyladipic acid**, $\beta\beta$ -diimino-. See diacetoacetic acid, *dicyano-*.
- Diacetylaloe-emodin** (OESTERLE), A., i, 538.
- Diacetyl-*p*-chlorophenylhydrazoxime** (PONZIO), A., i, 717.
- Diacetylceitryldiphenylhydrazide** (MANUELLI and DE RIGHI), A., i, 885.
- Diacetylcyanhydrin**, and **Diacetyldicyanhydrin**, and its *dibromo-* and *tetra-bromo-*derivatives (KELLER and MAAS), A., i, 12.
- Diacetylene glycol** (*hexadienediol*), and action of bromine on it; also diacetyl derivative and dimethyl ether (LESPIEAU), A., i, 184.
- Diacetylethebenine** (FREUND), A., i, 308.
- Diacetylglyceric acid**, and its *di-mono-*, *di-* and *tri-chloro-*derivatives, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 355.
- Diacetylhydrocinnamoin** (THIELE), A., i, 616.
- Diacetylhydroxymethylanthranol** (BISTRZYCKI and DE SCHEPPER), A., i, 151.
- Diacetylmethenine** (FREUND), A., i, 307.
- Diacetyl-*p*-methylhydrazobenzene** (JACOBSON and LISCHKE), A., i, 276.
- Diacetylmethylcyclopentenecarboxylic acid**, *diamino-*, ethylic salt (TRAUBE), A., i, 193.
- Diacetylmorpholquinone** and its azine (VONGERICHTEN), A., i, 649.
- Diacetylnaphthazarine**, condensation of, with diazomethane (VON PECHMANN and SEEL), A., i, 948.
- γ -Diacetyl- β -phenylcrotonic acid**, ethylic salt (RUHEMANN), T., 415; P., 1899, 15.
- Diacetylphenylhydrazoxime**, *p*-bromo- and *o*-chloro- (PONZIO), A., i, 718.
- Diacetylphenylmethane**, 2:4-dinitro- (MUTTELET), A., i, 281.
- Diacetylphenyldithiobiuret** (FROMM and PHILIPPE), A., i, 485.
- Diacetylphenylurazole** (CUNEO), A., i, 9.
- Diacetylphloroglucinol** (NENCKI), A., i, 879.
- Diacetylpicrotin** and **Diacetylpicrotoxinin** (MEYER and BRUGER), A., i, 227.
- Diacetylquinonedioxime**, *m*-chloro- (KEHRMANN and GRAB), A., i, 129.
- Diacetylsuccinic acid**, ethylic salt (KÖHLER and MACDONALD), A., i, 907.
- isomeric forms of (KNORR), A., i, 672.
- Diacetyltartaric acid**, and *mono-* and *di-chloro-*derivatives, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 362, 369.
- Diacetyl-1:3:5-triethylbenzene** (GATTERMANN, FRITZ, and BECK), A., i, 492.
- Diacetyltrimethylene**, *diimino-*, from action of alcohol on dicyanacetylacetone (TRAUBE), A., i, 193.
- Di-*o*-aldehydophenoxyacetic acid**, hydrazone, and its methylic salt (CAJAR), A., i, 147.
- Di-*o*-aldehydophenylic ethylic carbonate hydrazone** and semicarbazimide (CAJAR), A., i, 146, 147.
- Diallage** from Mexico (LENK), A., ii, 305.
- from the Transvaal (HENDERSON), A., ii, 111.
- Diallylcarbamide** (*sinapoline*), and **Diallylthiocarbamide**, and the action of bromine and iodine on them (RUNDQVIST), A., i, 18.

- "Diamine pure blue,"** molecular weight of, in aqueous solution (KRAFFT), A., ii, 473.
- Diamond,** origin of South Africa (FRIEDLÄNDER), A., ii, 559.
minerals associated with, in Bahia (HUSSAK), A., ii, 494.
parent-rock of, in South Africa (BONNEY), A., ii, 769.
artificial production of, in silicates (FRIEDLÄNDER), A., ii, 559.
- Diamond-sands** of Brazil (HUSSAK), A., ii, 432.
- Diisoamyl.** See Decane.
- Diisoamylacetic acid.** See Dodecoic acid.
- Diamylamine,** specific rotation of (BRUCHONENKO), A., ii, 265.
periodide (NORRIS and FRANKLIN), A., i, 663.
cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
- Diisoamylamine,** action of nitrosyl chloride on (SOLONINA), A., i, 473.
- Diamylenic oxide.** See Decylenic oxide.
- Diamylic alcohol.** See Decylic alcohol.
- Diisoamylidene-ethylenediamine** and its platinochloride (KOLDA), A., i, 328.
- Diisoamylmalonic acid,** and action of heat on (FOURNIER), A., i, 735.
- Diamylresorcinol,** and diacetyl derivative (GUREWITSCH), A., i, 880.
- Diamylthiocarbamide,** formation of (WALLACH), A., i, 659.
- Dianilinedichloroquinonedisulphonic acid,** potassium salt (IMBERT and PAGES), A., i, 516.
- Dianilinonitroquinone** (KEHRMANN and INDZKOWSKA), A., i, 493.
- Dianisidine,** diacetyl and dibenzoyl derivatives, carbamide and thiocarbamide (STARKE), A., i, 589.
- Dianisyl** (STARKE), A., i, 589.
- Dianisylacetic acid,** and its salts (FRITSCH and FELDMANN), A., i, 600.
- Dianisylldichlorethylene** (FRITSCH and FELDMANN), A., i, 600.
- Dianisylldihydrazinesulphonic acid,** sodium salt (STARKE), A., i, 589.
- Di-o-anisylldihydrazonacetylacetone** (FAVREL), A., i, 438.
- Dianisylldihydrazonacyanoacetic acid,** diethylic salt (FAVREL), A., i, 58.
- o-Dianisylldihydrazonemalonic acid,** methylic and ethylic salts (FAVREL), A., i, 521.
- Dianisylldithiocarbimide** (BAMBERGER), A., i, 697.
- Dianisylpropane** (MOUREU), A., i, 495.
- Diaphorite** from U.S.A. (SPENCER), A., ii, 108.
possible identity with brongniardite (SPENCER), A., ii, 108.
- Diarsonium compounds,** hexa-alkylated (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Diaspore** from Bahia (HUSSAK), A., ii, 494.
- Diastase,** preparation of, without alcohol (SYKES and HUSSEY), A., i, 313.
malt-, composition of, and action of, on pectin (BOURQUELOT and HÉRISSEY), A., i, 93.
action of, on amylose, and relation to starch formation in plants (MEYER), A., ii, 321.
action of, on barley starch (LING), A., ii, 187.
action of, on inulin (CHITTENDEN and SIVITER), A., ii, 310.
- Diastases,** estimation of, in urine (CHIBRET), A., ii, 459.
- m-Diazine.** See Pyrimidine.
- Diazoacetic acid,** ethylic salt, and nitrile (CURTIUS), A., i, 9.
- Diazoamino-compounds,** velocity of conversion of, into aminoazo-compounds (GOLDSCHMIDT and SALCHER), A., ii, 551.
- Diazoaminindazole** (BAMBERGER and VON GOLDBERGER), A., i, 546.
- β-Diazoaminopyridine** (MOHR), A., i, 72.
- Diazo benzene,** *perbromide*, and sulphionate, action of bromine on (ARMSTRONG), P., 1899, 176.
p-bromo-, constitution of (HANTZSCH), A., i, 400.
- anti-Diazo benzene,** *p*-bromo- and *p*-nitro- (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 686.
- 4-Diazo benzeneimide,** 1:3-*dinitro*- (DROST), A., i, 751.
- iso-Diazo benzenesodium,** *p*-nitro-, behaviour towards ethylic acetoacetate (BÜLOW), A., i, 271.
- Diazo benzenesulphonic acid,** rate of formation of azo-compounds from, and tertiary amines (GOLDSCHMIDT and BÜCKLE), A., ii, 276.
compounds of, with mercuric chloride and mercuric cyanide (HOFMANN and MARBURG), A., i, 487.
- o-Diazo benzoic acid,** reduction of (HENDERSON), A., i, 430.
- Diazo-compounds,** action of, on oximes (BAMBERGER), A., i, 589.
a new class of (BAMBERGER), A., i, 719.
- 3'-Diazo-1:3-dimethylindazole hydroxide** (BAMBERGER), A., i, 514.

- Diazoethane** (VON PECHMANN), A., i, 134.
- Diazoguanidine cyanide** (*triazendicarbamidine nitrile, aminoiminomethylcyonotriazen*), the action of hydrogen chloride and hydroxylamine on; reduction of (THIELE and OSBORNE), A., i, 412, 413.
- Diazohydrates**, distinction of, from primary nitrosamines (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 685.
- anti-Diazohydrates**, behaviour of, with phosphorus pentachloride, acetic chloride, and ammonia (HANTZSCH), A., i, 400.
- Diazoindazole hydroxide** (BAMBERGER and VON GOLDBERGER), A., i, 546.
- Diazomethane**, condensation of, with quinone, α -naphthaquinone, and with diacetylnaphthazarine (VON PECHMANN and SEEL), A., i, 947.
- Diazonium** (*benzenediazonium*), hydroxide and salts, physico-chemical properties of (DAVIDSON and HANTZSCH), A., ii, 6, 7.
- salts (BAMBERGER), A., i, 750.
- action of thymol-*p*-sulphonic acid on (STEBBINS), A., i, 916.
- p*-Diazophenylhydroxylamine chloride**, and salts (FISCHER), A., i, 349.
- Diazosulphanilic acid**, potassium salt (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 687.
- Diazotates**, normal, behaviour of, towards benzoic chloride (HANTZSCH), A., i, 685.
- iso*-Diazotates**, behaviour of, towards sodium amalgam (HANTZSCH), A., i, 685.
- Diazothiazol hydrates** (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 686.
- Diazotisation**, velocity of (HANTZSCH and SCHÜMANN), A., ii, 549.
- o*-Diazotolueneimide**, *m*-nitro- (ZINCKE and SCHWARZ), A., i, 751.
- Diazotriazolecarboxylic acid** (THIELE and MANCHOT), A., i, 168.
- Diazouracils** (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 686.
- Diazourethane**, and methyl derivative, constitution of (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 686; (BRÜHL), A., i, 871.
- Diazovanillic acid chloride** (VOGL), A., i, 698.
- 4-Diazo-*m*-xyleneimide**, 5-nitro- (ZINCKE and SCHWARZ), A., i, 751.
- Dibebeerineyleneammonium bromide** (SCHOLTZ), A., i, 92.
- Dibenzamide**, mercury compound of, constitution of (KIESERITZKY), A., i, 395.
- Dibenzamidodibenzyl** (THIELE and HOLZINGER), A., i, 438.
- 4:4'-Dibenzamidodiphenyl-3:3'-dicarboxylic acid** (BÜLOW and VON REDEN), A., i, 150.
- 2:4'-Dibenzamido-5-ethoxydiphenyl** (JACOBSON and TIGGES), A., i, 275.
- Dibenzanilide ethylenic ether**, dithio- (BAMBERGER), A., i, 695.
- Dibenzaniside** (STARKE), A., i, 589.
- Dibenzenesulphinic acid**, hydrazine salt (CURTIUS and LORENZEN), A., i, 149.
- Dibenzenesulphoethylenediamide** (MARCKWALD and DROSTE-HUELSHOFF), A., i, 290.
- Dibenzenesulphonic acid hydrazine salt**, and **Dibenzenesulphonehydrazide** (CURTIUS and LORENZEN), A., i, 149.
- Dibenzenesulphonylphenyl-ethylhydrazine**, and **-methylhydrazine** (BAMBERGER), A., i, 701.
- Dibenzenesulphopiperazide** (MARCKWALD and DROSTE-HUELSHOFF), A., i, 290.
- Dibenzenylazoxime**, *o*-dichloro- (WERNER and BLOCH), A., i, 754.
- Dibenzocarbamide** (WALTHER and WLODKOWSKI), A., i, 590.
- Dibenzocitryldiphenylhydrazide** (MANUELLI and DE RIGHI), A., i, 885.
- Dibenzohydrazide**, and the action of heat on it (PELLIZZARI), A., i, 858.
- Dibenzomethylbutylenediamide** (ETAIX and FREUNDLER), A., i, 245.
- Dibenzo-*o*-phenylenediamide** (WALTHER and PULAWSKI), A., i, 639.
- Dibenzophenylhydrazide** (BUSCH and BECKER), A., i, 953.
- Dibenzotricarballyldiphenylhydrazide** (MANUELLI and DE RIGHI), A., i, 885.
- Dibenzoylacetoneitrile**, and its methylic salt (SEIDEL), A., i, 139.
- Dibenzoylanthracene** (LIPPMANN and FLEISSNER), A., i, 918.
- Dibenzoylarginine** (GULEWITSCH), A., i, 834.
- Dibenzoyl α -barbaloin**, preparation of (LÉGER), A., i, 158.
- $\beta\beta$ -Dibenzoyl α -butyric acid**. See **Diphenacylacetic acid**.
- $\alpha\delta$ -Dibenzoyl- $\beta\gamma$ -diphenyl-butane**, -butene, and -butadiene and their dioximes (WISLICENUS and LEHMANN), A., i, 59.
- $\alpha\gamma$ -Dibenzoyl- $\alpha\gamma$ -diphenylpropane** (WISLICENUS and CARPENTER), A., i, 60.
- $\alpha\gamma$ -Dibenzoylglutaric acid**, ethylic salt (WISLICENUS and KUHN), A., i, 60.

- Dibenzoylglyceric acid**, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 356; (FRANKLAND and ASTON), T., 498; P., 1899, 106.
- Dibenzoylhydrocinnamoin** (THIELE), A., i, 616.
- Dibenzoylmesitylene**, preparation of (MILLS and EASTERFIELD), P., 1899, 22.
- Dibenzoylmesitylenic acid** (MILLS and EASTERFIELD), P., 1899, 23.
- Dibenzoylmorphine** hydrochloride (MERCK), A., i, 649.
- Dibenzoylornithine**, and its hydrolysis (SCHULZE and WINTERSTEIN), A., i, 107.
- Dibenzoyloxy- $\beta\beta'$ -dipyridylene** oxide (SELL and JACKSON), T., 517, P., 1899, 98.
- Dibenzoylpierotin** (MEYER and BRUGER), A., i, 227.
- $\alpha\gamma$ -Dibenzoylpropane**, and its dioxime and pinacone (WISLICENUS and KUHN), A., i, 60.
- Dibenzoylsuccinic acid**, ethylic salt, isomeric forms of (KNORR), A., i, 674.
- Dibenzoyltartaric acid**, methylic and ethylic salts, molecular volumes of (FRANKLAND), T., 349.
- Dibenzoyltrimesic acid** (MILLS and EASTERFIELD), P., 1899, 23.
- Dibenzoyluvic acids**, isomeric (MILLS and EASTERFIELD), P., 1899, 23.
- Dibenzyl**, formation of (MORITZ and WOLFFENSTEIN), A., i, 424; (WEILER), A., i, 491.
cryoscopic behaviour of, in azobenzene solution (BRUNI and GORNI), A., ii, 731.
mixtures of, with stilbene, freezing points of; depression of freezing point of, by hydrazobenzene, azobenzene, benzylideneaniline and benzyaniline; cryoscopic behaviour of, in benzyaniline solution (GARELLI and CALZOLARI), A., ii, 732.
action of chromyl chloride on (WEILER), A., i, 519.
- Dibenzyl, *o*-diamino-**, and its diacetyl and dibenzoyl derivatives; *o*-dichloro-, and *o*-imino, and its nitroso-derivatives (THIELE and HOLZINGER), A., i, 438.
- Dibenzylamine**, cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
- Dibenzylaniline**, formation of (WEDEKIND), A., i, 352.
- Dibenzylcyanaacetic acid**, ethylic salt (HESSLER), A., i, 898.
- Dibenzyl dimethylpiperazine** (UEDINCK), A., i, 497.
- Dibenzylethylenediamine hydrochloride**, formation of (BLEIER), A., i, 665.
- Dibenzylethylenedibenzenesulphonamide**, and its hydrolysis (BLEIER), A., i, 665.
- Dibenzylic** disulphide, *d*-amino-, its hydrochloride and acetyl derivative (THIELE and DIMROTH), A., i, 427.
phenylimidocarbonate, *d*-thio- (FROMM and BLOCH), A., i, 887.
- Dibenzylidene-adonitol**, -dulseitol, and -erythritol (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Dibenzylidenegranatonine** (PICCININI), A., i, 830.
- Dibenzylidene-*l*-idonic acid**, specific rotation and solubility of (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.
- Dibenzylidenemethylgranatonine** (PICCININI), A., i, 829.
- Dibenzylideneperseitol** (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Dibenzylidene-*m*-phenylenediamine** (MEYER and GROSS), A., i, 946.
- Dibenzylidenepropionic acid** (THIELE), A., i, 216, 609.
dibromide (THIELE and MAYR), A., i, 611.
m-nitro- (THIELE), A., i, 609.
- Dibenzylidene-rhamnitol**, -*d*-sorbitol and -*xylitol* (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Dibenzylidene-*l*-xylonic acid**, specific rotation and solubility of (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.
- Dibenzyl ketone**, action of light and of oxygen on (FORTEY), T., 871; P., 1899, 182.
condensation products of, with benzylidene aniline; action of sodium ethoxide on; bromo-, action of ammonia or aniline on (FRANCIS), T., 865; P., 1899, 181.
- Dibenzyl ketone phenylhydrazone** (FRANCIS), T., 868; P., 1899, 182.
- Dibenzyl ketoxime** (FRANCIS), T., 868; P., 1899, 182.
- Dibenzylmalononitrile** (HESSLER), A., i, 899.
- Dibenzylmesitylene** (MILLS and EASTERFIELD), P., 1899, 23.
- v*-Dibenzyl-*n*-methylthiourea** (DIXON), T., 374; P., 1899, 54.
- ψ *nv*-Dibenzylmethylthiourea** (DIXON), T., 375.
- Dibenzyl- β -naphthylamine** (MORGAN), P., 1899, 10.

Dibenzylpiperazine, and chloride, ethiodide, methiodide, propiodide, and isobutobromide (VAN RIJN), A., i, 77.

Dibenzylthiocarbamide, formation of (WALLACH), A., i, 659.

Diborneolic formal. See Borneol, methylenic acetal of.

Diisobutenyl (octinene), and the action of sulphuric and hydrobromic acids on (POGORZELSKY), A., i, 785.

Diisobutyl. See Octane.

Diisobutylamine, action of nitrosyl chloride on (SOLONINA), A., i, 473.

tert-Dibutylbenzene, formation of, and dinitro- (VERLEY), A., i, 425.

Dibutylcatechol, synthesis of (GUREWITSCH), A., i, 880.

Di-m-butylidibenzyl (MORITZ and WOLFFENSTEIN), A., i, 910.

Diisobutylhydrazine and its hydrochloride (FRANKE), A., i, 329.

Diisobutylideneethylenediamine and its platinochloride; also its hydrolysis and the action of bromine on it (KOLDA), A., i, 328.

tert-Dibutylpyrogallol, synthesis of, and triacetyl derivative (RÓZYCKI), A., i, 880.

Dibutylquinone, synthesis of (MENCKI; GUREWITSCH), A., i, 880.

Dibutylquinonephenylhydrazone (GUREWITSCH), A., i, 880.

Dibutylresorcinol, synthesis of, and dibutyl ether, and diacetate (GUREWITSCH), A., i, 880.

dd- and rd-Dibutylthiocarbamide (GADAMER), A., i, 534.

$\beta\beta$ -Dibutyroxydinaphthalene (FOSSE), A., i, 817.

Diisobutyryldi- β -naphthylethylenediamide, di- α -bromo-, and **Diisobutyryldi-p-tolyltrimethylenediamide**, di-bromo- (BISCHOFF and TSCHUNKEW), A., i, 279.

Dibutyryltartaric and **Diisobutyryltartaric acid**, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 361, 362.

Dicamphanepyrzazine and **Dicamphenepyrzazine** (DUDEN and PRITZKOW), A., i, 779.

Dicampherylic acid, and methylic salts, oxime, phenylhydrazone (PERKIN), T., 179; P., 1893, 110.
fusion of, with potash (PERKIN), T., 185; P., 1895, 24.

Dicarboethoxycarbamide (DAINS), A., i, 594.

Dicarbintetracarboxylic acid. See Ethylenetetracarboxylic acid.

Dicarboxyglutaconic acid (*methenylbis-malonic acid*, *propylenetetracarboxylic acid*), ethylic salt, tautomeric forms of (GUTHZEIT), A., i, 115.
ethylic salt, diamide of, identity of, with the ammonium salt of ethylic dihydroxynicotinate (GUTHZEIT), A., i, 450.

$\alpha\alpha$ -Dicarboxymethoxycarballylic acid, and methylic salts (ANSCHÜTZ and CLARKE), A., i, 577.

$\alpha\alpha$ -Dicarboxymethoxy- $\alpha\alpha$ -dimethyltri-carballylic acid, methylic salt (ANSCHÜTZ and CLARKE), A., i, 578.

Di-m-carboxyphenylic bisulphide (GATTERMANN), A., i, 518.

Dicarvelol, and its dihydrobromide, action of phosphoric anhydride on (HARRIES and KAISER), A., i, 579.

Dicarvelone, modifications of; phenylhydrazone, diacetyl derivatives, and dioximes (WALLACH), A., i, 530.
reduction of (HARRIES and KAISER), A., i, 579.

Dicatecholacetylenic ether (MOUREU), A., i, 30, 679.

Diapocinchonine, a mixture of α - and β -isocinchonine (SKRAUP), A., i, 961.

Dicrotonyl. See Octinene.

Dicrotonylic sulphide (CHARON), A., i, 849.

Dicumylene disulphide (COHEN and SKIRROW), T., 891; P., 1899, 183.

Dicyanodiamide, formation of (MONTECCHI), A., i, 429.

heats of combustion and formation of (LEMOULT), A., ii, 546.

action of nitric acid on (THIELE and UHLFELDER), A., i, 119.

Dicyanodiamidine, amino- and nitro- (THIELE and UHLFELDER), A., i, 119.

Dicumylene disulphide (COHEN and SKIRROW), T., 892; P., 1899, 183.

Didesyl-p-phenylenediamine, and its diacetyl derivative (JAPP and MELDRUM), T., 1045; P., 1899, 169.

Didymium nitrate (WYROUBOFF and VERNEUIL), A., ii, 225.

cerium nitrate and sulphate; oxides and their polymerides (WYROUBOFF and VERNEUIL), A., ii, 424.

oxide, constitution of (WYROUBOFF and VERNEUIL), A., ii, 598.

from monazite sands, composition of (URBAIN), A., ii, 425.

influence of, on the solubility of cerosoceric oxide in nitric acid (WYROUBOFF and VERNEUIL), A., ii, 424.

and lanthanum, separation of, from cerium (MENDEL), A., ii, 223.

- 2:5-Diethoxyacetophenone** (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 371.
- 1:3-Diethoxybenzene** (*resorcinol diethylic ether*), 2-bromo-4:6-dinitro- (JACKSON and GAZZOLO), A., i, 744.
- 5:2:4-bromodinitro-, and 5:6:4-bromodinitro- (JACKSON and KOCH), A., i, 677, 678.
- 1:3-Diethoxybenzylidenebromocoumaranone** (KOSTANECKI, TAMBOR, and BEDNARSKI), A., i, 892.
- Di-*o*- and *p*-ethoxydiphenyl disulphides** (GATTERMANN), A., i, 518.
- p*-Diethoxydiphenyltetrahydroglyoxaline** (BISCHOFF), A., i, 280.
- o*-Diethoxydiphenyltetrahydropyrone** (PETRENKO-KRITSCHENKO), A., i, 440.
- o*-Diethoxydiphenyltetrahydropyrone-oxime**, additive products of (PETRENKO-KRITSCHENKO and ROSENZWEIG), A., i, 706.
- o*-Diethoxydiphenyltetrahydropyrone-dicarboxylic acid** (PETRENKO-KRITSCHENKO), A., i, 440.
- 2:4'-Diethoxyflavone** (VON KOSTANECKI and ODERFELD), A., i, 705.
- 3:2'-Diethoxyflavone** (VON KOSTANECKI and VON SALIS), A., i, 524.
- 2:5-Diethoxyphenyl styryl ketone** (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 371.
- Diethoxysuccinic acid**, ethylic salt, action of methylcarbamide on, in presence of hydrogen chloride; also the ureine (GEISENHEIMER and ANSCHÜTZ), A., i, 575.
- d*-Diethoxysuccinic acid**, and its ethylic, silver, sodium, calcium, barium, acid potassium and acid ammonium salts, and their rotatory powers (PURDIE and PITKEATHLY), T., 158; P., 1899, 6.
- 2:4-Diethoxythiobenzanilide** (BAMBERGER), A., i, 695.
- Di-*p*-ethoxythiobenzo-dianisidide**, and *-o*-toluidide (BAMBERGER), A., i, 697.
- Diethylacetoacetic acid**, ethylic salt (CONRAD and GAST), A., i, 193.
- action of *p*-phenetidine on (FOGLINO), A., i, 132.
- Diethylacetoacetic acid**, γ -bromo-, ethylic salt (LAWRENCE), T., 423; P., 1898, 252; (CONRAD and GAST), A., i, 193.
- γ -cyano-, ethylic salt (LAWRENCE), T., 423; P., 1898, 252.
- β -Diethylallene**. See Heptinene.
- Diethylallylmalonic acid**, and ethylic salt (IPATIEFF), A., i, 673.
- Diethylamine**, effect of pressure on melting point curves of (TAMMANN), A., ii, 636.
- action of, on ethylic phenylpropiolate and acetylenedicarboxylate (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
- action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1009; P., 1899, 124.
- action of iodine on (NORRIS and FRANKLIN), A., i, 663.
- cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
- Diethyl-*o*-aminobenzonitrile** (FRIEDLÄNDER), A., i, 350.
- Diethylaminobenzoyltetrachlorobenzoic acid**, methylic and ethylic salts, and mixed acetic anhydride (HALLER and UMBGROVE), A., i, 814.
- Diethylaminocinnamic acid**, from action of diethylamine on ethylic phenylpropiolate (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
- Diethylaminodiphenylanthrone** (TÉTRY), A., i, 818.
- Diethyldiaminodi-*o*-tolylmethane** (FRIEDLÄNDER), A., i, 350.
- Diethylaminomaleic acid**, ethylic salt (RUHEMANN and CUNNINGTON), T., 957; P., 1899, 185.
- 4-Diethylaminophenyl- μ -cyanazomethine-phenyl and -4'-nitrophenyl** (EHRlich and SACHS), A., i, 884.
- γ -Diethylamino- $\alpha\beta$ -propylenic glycol** (*diethylpropanediolamine*) and its picrolonate (KNORR and KNORR), A., i, 412.
- Diethylaniline**, rate of formation of azo-compounds from, and diazobenzenesulphonic acid (GOLDSCHMIDT and BÜCKLE), A., ii, 276.
- oxide, and its picrate (BAMBERGER and TSCHIRNER), A., i, 348.
- nitroso-, condensation with benzylic cyanide (EHRlich and SACHS), A., i, 884.
- Diethylaniline-*p*-thionamic acid** (FRANCKE), A., i, 46.
- Diethylbornylamine**, platinochloride (FORSTER), T., 947; P., 1899, 72.
- Diethylcarbinol**. See Amylic alcohol.
- Diethylcyanacetic acid**, ethylic salt (HESSLER), A., i, 898.
- Diethyldibenzyl** (MORITZ and WOLFFENSTEIN), A., i, 910.
- Diethylenedipiperidyl iodide** (ASCHAN), A., i, 542.
- Diethylenetetramethylenetetramine** (BISCHOFF), A., i, 279.

- Diethylglycollonitrile** (*diethylketocyanhydridin*) and acetate; also action of phosphoric anhydride on the latter (HENRY), A., i, 568.
- β -Diethylhydroxylamine**, formation of by action of hydrogen peroxide on diethylamine (DUNSTAN and GOULDING), T., 1009; P., 1899, 124.
and its salts; also decomposition and reduction, and the action of ethylic iodide on (DUNSTAN and GOULDING), T., 800; P., 1899, 59.
- Diethylic dithiocarbonate**, synthesis of (KONOWALOFF), A., i, 471.
- 2':2'-Diethylindolenine** (PLANCHER), A., i, 451.
- 3':3'-Diethylindolenine-2'-carboxylic acid**, -2'-nitrile, -2'-formamidoxime, and -2'-formoxime and its acetyl derivative (PLANCHER), A., i, 453, 454.
- 3':3'-Diethylindolenone**, and dibromide (PLANCHER), A., i, 454.
- 3':3'-Diethylindolenyl-2'-carboxylic acid** (PLANCHER), A., i, 451.
- Diethylketocyanhydridin**. See **Diethylglycollonitrile**.
- Diethyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
oxidation of, in the organism (SCHWARZ), A., ii, 40.
- Diethyl ketone**, amino-, and *isonitroso*- (JÄNECKE), A., i, 476.
- β -Diethylactic acid** (*3-ethyl-2-pentanol-ol-ic acid*), from hydrolysis of ethylic γ -acetoxydiethylacetoacetate; also silver salt (CONRAD and GAST), A., i, 193.
- Diethylariciresinol** (BAMBERGER and LANDSIEDL), A., i, 929.
- β -Diethylmalic acid**, from action of baryta water on the monobromo-derivative of ethylic γ -acetoxydiethylacetoacetate (CONRAD and GAST), A., i, 193.
- iso-Diethylnitramine**, action of sulphuric acid on (FRANCHIMONT and UMB-GROVE), A., i, 106.
- Diethyl-o-phenetidine**, and **Diethyl-o-phenetidinea-zo-p-nitrobenzene** (FRIEDLÄNDER), A., i, 350.
- Diethylphenol**, and **tribromo-** and **tri-nitro-** (JANNASCH and RATHJEN), A., i, 878.
- Diethylphosphinic acid**, ethylic salt (ENGLER and WEISSBERG), A., i, 189.
- Diethylpipecolylalkinium salts** (LADENBERG and KRÜGEL), A., i, 303.
- Diethylpiperazine** (VAN RIJN), A., i, 166.
- Diethylpropanediolamine**. See γ -Diethylamino- $\alpha\beta$ -propylenic glycol.
- Diethyl-dithiocarbamic acid**, diethyl-ammonium salt, electrolysis of solution of (SCHALL and KRASZLER), A., i, 414.
- Diethylthiocarbamide**, formation of (WALLACH), A., i, 659.
- β -Diethyltrimethylenic bromide**, action of ethylic sodiomalonate on (IPATIEFF), A., i, 673.
- Diethyl-m-xylydine**, and its platino-chloride (FRIEDLÄNDER and BRAND), A., i, 351.
- Di-eucarvelone** (WALLACH), A., i, 531.
- Diffusin**, from *Platysma diffusum* (ZOPF), A., i, 717.
- DIFFUSION** :—
Diffusion of partially dissociated electrolytes (BOSE), A., ii, 729.
of gaseous ions (TOWNSEND), A., ii, 730.
of gases through animal membranes (HILL), A., ii, 437.
of gases through caoutchouc (D'ARSONVAL), A., i, 771.
of gases through water and through agar jelly, velocity of (HÜFNER), A., ii, 9.
- Osmosis** of organic liquids across vulcanised caoutchouc (FLUSIN), A., ii, 204.
- Osmotic pressure** (SPEYERS), A., ii, 9.
cause of (BARMWATER), A., ii, 274.
theory of (SCHREBER), A., ii, 273.
in gases, determination of (KISTIA-KOWSKI), A., ii, 730.
and osmotic work, relation between (DIETERICI), A., ii, 547.
osmotic work and vapour pressure (NOYES), A., ii, 357.
and association of solvents (REYCHLER), A., ii, 357.
of dilute solutions of sodium chloride (PONSOT), A., ii, 591.
and concentration of ethereal solutions (GOODWIN and BURGERS), A., ii, 273.
of cane sugar solutions (PONSOT), A., ii, 204, 357.
and velocity of inversion of cane sugar (ARRHENIUS), A., ii, 359.
- Osmotic theory** of electromotive force and conductivity (KAHLENBERG), A., ii, 624.
of cell (NERNST), A., ii, 345.
- 2:4-Diformamidodiphenyl**, 5-bromo- (JACOBSON and GROSSE), A., i, 274.
5-chloro- (JACOBSON and STRÜBE), A., i, 273.
- 2:4'-Diformamido-5-hydroxydiphenyl** (JACOBSON and TIGGES), A., i, 275.

- Di-formohydrazide**, and action of heat on (PELLIZZARI), A., i, 858.
- 4 : 5-Di- α -furfuryloctane-2 : 7-dione**, (HARRIES and KAISER), A., i, 578.
- Digallacyl**, acetyl derivative and osazone (VON GEORGIEVICS), A., i, 803.
- Digallic acid**, distinction between gallic acid and (GRIGGI), A., ii, 581.
- α -Digallic acid** (WALDEN), A., i, 212.
- Digestion**, influence of various antiseptics on (MABERY and GOLD-SMITH), A., ii, 164.
- influence of formaldehyde on (WEDEMEYER), A., ii, 460.
- influence of certain substances on (SIMONS), A., ii, 164.
- fractional precipitation of products of, by zinc sulphate (ZUNZ), A., ii, 504.
- pancreatic, of starch, influence of acids and alkalis on (RACHFORD), A., ii, 567.
- formation of tyrosine from fibrin by (HARLAY), A., i, 656.
- peptic and pancreatic, of albumin (HARLAY), A., i, 835.
- and tryptic, products of (LAWROFF), A., ii, 309.
- course of (ZUNZ), A., ii, 774.
- solubility of products of, in alcohol (EFFRONT), A., i, 835.
- in molluscs (BIEDERMANN and MORITZ), A., ii, 438.
- of casein, first products of the (SALKOWSKI), A., ii, 567.
- of cellulose by liver secretion of *Helix pomatia* (BIEDERMANN and MORITZ), A., ii, 166.
- of lactose in the small intestine (WEINLAND), A., ii, 604.
- Digitalain**, preparation of, from *Digitalis* seeds (KILIANI and WINDAUS), A., i, 932.
- Digitaligenin** (KILIANI), A., i, 71, 932.
- Digitalin**, composition and hydrolytic products of (KILIANI), A., i, 71.
- detection of (MELZER), A., ii, 193.
- "Digitaline crystallisée,"** properties of (KILIANI), A., i, 71.
- "Digitalinum verum,"** decomposition products of (KILIANI), A., i, 932.
- Digitalis ferment**, occurrence and properties (BRISSEMORET and JOANNE), A., ii, 319.
- Digitalonic acid** and **Digitalose** (KILIANI), A., i, 71.
- Digitic acid**, molecular weight of (EDINGER), A., i, 377.
- Digitogenic acid** (EDINGER), A., i, 377 ; (KILIANI and WINDAUS), A., i, 932.
- β -Digitogenic acid**, and oxime (KILIANI and WINDAUS), A., i, 933.
- Digitogenin** (EDINGER), A., i, 377 ; (KILIANI and WINDAUS), A., i, 932.
- Digitonic acid** (KILIANI and WINDAUS), A., i, 932.
- Digitonin** (EDINGER), A., i, 377.
- Digitoflavone**, and tribenzoate, triacetate, and tribenzenesulphonate ; decomposition products (FLEISCHER), A., i, 631.
- Digitoxic acid** (KILIANI), A., i, 932.
- Digitoxigenin** (KILIANI), A., i, 70, 932.
- Digitoxin** (KILIANI), A., i, 70, 71, 932.
- Digitoxose**, and its oxime (KILIANI), A., i, 70, 932.
- Digitoxosecarboxylic acid**, calcium salt and lactone (KILIANI), A., i, 70.
- $\alpha\alpha'$ -Diglutaric acid**, and dimethylic salt (SELL and JACKSON), T., 515 ; P., 1899, 98.
- Diglycolamic acid**, mercury derivative of, constitution of (KIESERITSKY), A., ii, 395.
- Diglycolyl-carbamide** and **-dimethyl-carbamide**, thio- (FRERICHS), A., i, 796.
- Diglycolyl-diethyl-, -diisobutyl-, and -diamyl-urethanes**, thio- (FRERICHS), A., i, 796.
- Digualacylic ethylenic ether** (BOSCOGRANDE), A., i, 427.
- Diheptylcarbamide** (MANUELLI and RICCA-ROSELLINI), A., i, 887.
- Dihexoyltartaric acid**, ethereal salts, densities, specific rotations, and molecular volumes of (FRANKLAND), T., 362.
- Dihydroacenaphthene-*p*-diazine**, and *di*-bromo-derivative (AMPOLA and RECHCI), A., i, 919.
- Dihydrobenzoic acid**. See *cyclo*-Hexadienecarboxylic acid.
- Dihydro-*cis*-campholytic acid**, α -bromo- (NOYES), A., i, 284.
- Dihydrocamphoric acid** (CROSSLEY), T., 771 ; P., 1898, 247.
- Dihydrocamphorone**, 7-nitroso- (HARRIES and MATFUS), A., i, 629.
- Dihydrocarvyldiamine**, salts and dibenzyl derivative, diphenylcarbamide, and diphenylthiocarbamide (HARRIES and MAYRHOFER), A., i, 625.
- Dihydrocinchenine** (*dihydrocinchine*), action of sulphuric acid on (KOENIGS and HÖPPNER), A., i, 88.
- Dihydrodicamphenepyzazine**, and salts (DUDEN and PRITZKOW), A., i, 779.
- Dihydroeucarvylamine**, phenylcarbimide and phenylthiocarbimide (WALLACH), A., i, 531.
- Dihydroisolauroic acid**, and its oxime and semicarbazone (BLANC), A., i, 927.

- Dihydro- ψ -lauronic acid**, bromo-, methylic salt (LEES and PERKIN), P., 1899, 24.
- Dihydro- β -naphthaquinoneaminoguanidine**, hydrochloride (THIELE and BARLOW), A., i, 48.
- Dihydro- δ -naphthyl dimethylamino-ethyl ether** (KNORR), A., i, 463.
- Dihydrophenylacridine**, diamino- (MEYER and GROSS), A., i, 945.
- 1:4-Dihydro-1-phenylnaphthalene** (THIELE and MEISENHEIMER), A., i, 614.
- Dihydroquinoneaminoguanidine**, hydrochloride (THIELE and BARLOW), A., i, 47.
- Dihydroquinone-bisaminoguanidine** hydrochloride (THIELE and BARLOW), A., i, 47.
- Dihydroresorcinol**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- oxidation of (VORLÄNDER and KOHLMANN), A., i, 679.
- derivatives (VORLÄNDER), A., i, 345.
- Dihydroterephthalic acid**. See *cyclo-Hexadiene-1:4-dicarboxylic acid*.
- Dihydrotetrazine** (*tetrazoline*) (RUHEMANN and STAPLETON, T., 1133; P., 1899, 191; (PELLIZARI), A., i, 859.
- Dihydrothebaine** and methiodide (FREUND), A., i, 309.
- iso*-**Dihydrothebaine** and hydriodide and methiodide (FREUND), A., i, 309.
- Dihydrotolualloxazine** (KÜHLING), A., i, 723.
- Dihydrotruxone** (MANTHEY), A., i, 894.
- $\Delta^{2,4}$ -Dihydrovitic acid**, and salts (WOLFF and HEIP), A., i, 515.
- Dihydroxyacetone**, and its molecular weight (BERTRAND), A., i, 860.
- action of yeast on a mixture of glyceraldehyde with (EMMERLING), A., ii, 318.
- 2:4-Dihydroxyacetophenone** (*resacetophenone*), monethyl ether of, condensation of, with *o*-ethoxybenzaldehyde (VON KOSTANECKI and VON SALIS), A., i, 523.
- Dihydroxyanhydroecgonine** methiodide and its methylic derivative, and methylbetaine (WILLSTÄTTER), A., i, 651.
- Dihydroxybehenic acids**, formation of, from oxidation of erucic and brassidic acids (ALBITZKY), A., i, 862.
- 2:4'-Dihydroxybenzophenonephenylimine**, and diacetyl derivatives and salts (GRAEBE and KELLER), A., i, 703.
- 2:2'-Dihydroxybenzophenonimine** (GRAEBE), A., i, 702.
- 2:4-Dihydroxybenzylimine** hydrochloride (GATTERMANN and KÖBNER), A., i, 363.
- Dihydroxybutyric acid**, from decomposition of celloxin, and its rotatory power (FABER and TOLLENS), A., i, 855.
- Dihydroxycamphoceanic acid** (JAGELKI), A., i, 628.
- m*-**Dihydroxycarbanilide** (MEYER and SUNDMACHER), A., i, 755.
- 3:4-Dihydroxycinnamic acid**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
- o*-**Dihydroxydibenzyl** (THIELE and HOLZINGER), A., i, 438.
- Dihydroxydibenzylmesitylene** (MILLS and EASTERFIELD), P., 1899, 23.
- α/β -Dihydroxy- $\alpha\alpha$ -diethylglutaric acid**, lactone of (LAWRENCE), T., 423.
- Dihydroxydiketonaphthadihydropyrazole**, and di- and tri-acetyl derivatives (VON PECHMANN and SEEL), A., i, 948.
- Dihydroxydilepidine** (HEIDRICH), A., i, 366.
- p*-**Dihydroxydimesitylic ether**, *tetra*-bromo-, diacetate (AUWERS and ALLENDORFF), A., i, 33.
- Dihydroxydimethylacetoacetic acid**, lactone of (CONRAD and GAST), A., i, 114.
- α/β -Dihydroxy- $\alpha\alpha$ -dimethylglutaric acid**, lactone of, and its methylic and ethylic salts, and its reduction (LAWRENCE), T., 419.
- β/γ -Dihydroxy- $\alpha\alpha$ -dimethylglutaric acid**, and its monolactone (CONRAD and GAST), A., i, 258.
- 2:2'-Dihydroxy-6:6'-dioxy-5:5'-dipyridyl-4':4'-dicarboxylic acid**, nitroso- and its hydroxylamine salt (SELL and JACKSON), T., 514; P., 1899, 98.
- 4:4'-Dihydroxydiphenyl-3:3'-dicarboxylic acid** (BULOW and VON REDEN), A., i, 150.
- p*-**Dihydroxydiphenylamine**, and its triacetyl derivative (SCHNEIDER), A., i, 499.
- m*-**Dihydroxydiphenyloxamine** (MEYER and SUNDMACHER), A., i, 755.
- Dihydroxy- $\beta\beta$ -dipyridyldi-*p*-quinone**, and dioxime and semicarbazone (SELL and JACKSON), T., 516; P., 1899, 98.
- Dihydroxy- $\beta\beta$ -dipyridylene oxide**, dichloro- and acetyl and benzoyl derivatives (SELL and JACKSON), T., 517; P., 1899, 98.
- Dihydroxyethylamine** (CHANCEL), A., i, 411.
- Dihydroxyethylaminocamphor** (KNORR), A., i, 783.

- Dihydroxyethylaminotetrahydro- β -naphthol**, conversion of, into 1''-hydroxyethylnaphthalanmorpholine (KNORR), A., i, 782.
- 2:4'-Dihydroxyflavone**, and diacetyl derivative (VON KOSTANECKI and ODERFELD), A., i, 705.
- 3:2'-Dihydroxyflavone** (VON KOSTANECKI and VON SALIS), A., i, 524.
- 3:4'-Dihydroxyflavone**, and its diacetyl derivative (VON KOSTANECKI and OSIUS), A., i, 370.
- Dihydroxyhexoic acid**. See α -Propylglyceric acid.
- Dihydroxylamine** in reduction of nitrites (DUNSTAN; HUNTLY), discussion, P., 1898, 225.
- Dihydroxymaleic acid**, preparation of crystalline glycollic aldehyde from (FENTON and JACKSON), T., 575; P., 1899, 119.
- Dihydroxymethylisobutylideneacetic acid** (KIETREIBER), A., i, 331.
- Dihydroxymethyldihydrotriazine** (THIELE and BAILEY), A., i, 169.
- α - γ -Dihydroxy- α -methylethylglutaric acid**, lactone of (LAWRENCE), T., 422.
- Dihydroxymethyltriazine** (THIELE and BAILEY), A., i, 169.
- Dihydroxynaphthaquinone** (isonaphthazarin), acetyl and diacetyl derivatives (ZINCKE and OSSENBECK) A., i, 765.
- 3':4'-Dihydroxy- α -naphthaquinonedi-phenylmethane** and **3':4'-Dihydroxy- α -naphthaquinonetetramethyldiaminodiphenylmethane** (MÖHLAU and KLOFFER), A., i, 913.
- Dihydroxynicotinic acid**, ethylic salt (GUTHZEIT), A., i, 450.
- Dihydroxynonoic acid**, γ -lactone of, from hydrolysis of isobutaldol cyanhydrin; also its oxidation, and its acetate (KOHN), A., i, 328.
- Dihydroxyphenylacetic acid** (JERDAN), T., 817; (GONNERMANN), A., ii, 790.
- 2:6-Dihydroxy-4-phenyl-3-benzylpyridine** (RUHEMANN), T., 249; P., 1899, 6.
- 2:6-Dihydroxy-4-phenylpyridine-3-carboxylic acid**, ethylic salt (RUHEMANN), T., 247; P., 1899, 6.
- 4:6-Dihydroxy-2-picoline**, nitroso- (HESS), A., i, 774.
- $\alpha\beta$ -Dihydroxypropionic acid**. See Glyceric acid.
- 1:4-Dihydroxyquinone** (KEHRMANN and BAHATRIAN), A., i, 31.
- Dihydroxystearic acids**, formation of, from oxidation of oleic and elaidic acids (ALBITZKY), A., i, 862.
- Dihydroxysuccinic acid**, and its methylic and ethylic salts, ureines of, and the derived diacetyl derivative (GEISENHEIMER and ANSCHÜTZ), A., i, 574, 575.
- Dihydroxytartarobisaminoguanidine** (THIELE and DRALLE), A., i, 8.
- 3:6-Dihydroxyterephthalic acid** (*quinoldicarboxylic acid*), dibromo- and diiodo-, ethylic salts (GUINCHARD), A., i, 700.
- 1:2-Dihydroxy-1:2:4:5-tetraphenylcyclohexadiene** (*dihydroxytetraphenyldihydrobenzene*) (WISLICENUS and LEHMANN), A., i, 59.
- m*-Dihydroxythiocarbanilide** (MEYER and SUNDMACHER), A., i, 755.
- Dihydroxyvaleric acid**. See α -Ethylglutaric acid.
- 3:6-Dihydroxyxanthone**, its diacetyl and tetrabromo-derivatives (MEYER and CONZETTI), A., i, 763.
- Di-imide**, formed by action of boiling benzene on sulphocarbanilide (SCHALL), A., i, 280.
- Di-indazole**, pentabromo- (BAMBERGER), A., i, 722.
- Di-isatic acid**, and bromo-derivative (MARCHLEWSKI and RADCLIFFE), A., i, 74, 387.
- Di-isatin** (MARCHLEWSKI and RADCLIFFE), A., i, 387.
- Diketobenzobisdihydropyrazole** and its salts (VON PECHMANN and SEEL), A., i, 947.
- $\alpha\beta$ -Diketobutyric acid**, α -*m*-nitrophenylhydrazine of ethylic salt (WEDEKIND), A., i, 690.
- Diketodimethyldihexahydrophenyl** (HARRIES and KAISER), A., i, 579.
- 4:7-Diketoheptanecarboxylic acid** (KEHRER and IGLER), A., i, 568.
- Diketonnaphthadihydropyrazole**, and salts and monobenzoyl derivative (VON PECHMANN and SEEL), A., i, 948.
- Diketonnaphthafurazan** (ZINCKE and OSSENBECK), A., i, 766.
- 1:5-Diketophenoheptamethylene**, and dioxime and diphenylhydrazine (DIECKMANN), A., i, 914.
- 1:5-Diketophenoheptamethylene-2:4-dicarboxylic acid**, ethylic salt (DIECKMANN), A., i, 914.
- Diketotetramethyldihexahydrophenyl** and its *p*-bromophenylhydrazine (HARRIES and KAISER), A., i, 579.
- Dill**, oil of, composition of (SCHIMMEL and Co.), A., i, 299.
- Dilution**, influence of, on electric conductivity (SCHÜKAREFF), A., ii, 722.
- of electrolytes (EULER), A., ii, 724.

- Dilution law.** See Affinity, chemical.
- Dimalo-diaspartic and -hexaspartic acids,** salts (SCHIFF and SEVERI), A., i, 675.
- Dimentholic formal.** See Menthol, methylenic acetal of.
- Dimesityl ketone.** See Mesitoylmesitylene.
- 2:4- and 3:4-Dimethoxybenzaldehydes** (BOUVEAULT), A., i, 288.
- 2:4-, 3:4-, and 3:6-Dimethoxybenzylideneanilines** (BOUVEAULT), A., i, 288.
- 1:8-Dimethoxybenzylidenebromocoumaranone** (VON KOSTANECKI, TAMBOR, and EMILEWICZ), A., i, 892.
- Di-*o*- and -*p*-methoxydiphenyl sulphides** (GATTERMANN), A., i, 518.
- Di-*o*-methoxydiphenyldisulphonehydr-oxyamine** (GATTERMANN), A., i, 517.
- o*-Dimethoxydiphenyltetrahydropyrone oxime** (PETRENKO-KRITSCHENKO, and ROSENZWEIG), A., i, 707.
- Dimethoxyditolyl disulphide** (GATTERMANN), A., i, 518.
- 3:4-Dimethoxy-3'-ethoxybenzylidenecoumaranone** (VON KOSTANECKI and RÓZYCKI), A., i, 912.
- Dimethoxymethylcampheride** (CIAMICIAN and SILBER), A., i, 537.
- 2:4-, 3:4-, and 3:6-Dimethoxyphenylglyoxylic acids and salts** (BOUVEAULT), A., i, 288.
- o*-Dimethoxyphthalic acid.** See Methahemipinic acid, under Hemipinic acid.
- 1:8-Dimethoxypiperonalbromocoumaranone** (KOSTANECKI, TAMBOR, and HERSTEIN), A., i, 893.
- Dimethoxysuccinic acid,** methylic salt, ureine of (GEISENHEIMER and ANSCHÜTZ), A., i, 575.
- Di-*p*-methoxythiobenzodianisidide** (BAMBERGER), A., i, 697.
- Di-*p*-methoxythiobenzo-*o*-tolidide** (BAMBERGER), A., i, 697.
- Dimethylacetone,** amino- (CONRAD and HOCK), A., i, 632.
- Dimethylacetoacetic acid,** ethylic salt, action of hydrochloric acid on a mixture of, with potassium cyanide (KOMPPA), A., i, 419.
- γ -bromo-,** methylic salt, boiling point of (CONRAD and GAST), A., i, 114.
- γ -cyano-,** methylic salt, and its hydrolysis (LAWRENCE), T., 418; P., 1898, 251; (CONRAD and GAST), A., i, 258.
- Dimethylacetophenone,** synthesis of (NENCKI; MEISSEL), A., i, 880.
- Dimethyl-aceto- and -diaceto-phenylammonium bromide** (SCHMIDT), A., i, 5.
- Dimethylacetylacetone,** *hexabromo-, tetrabromo-, and tetrachloro-* (BOEHM), A., i, 805.
- $\beta\beta$ -Dimethylacetylsuccinic acid,** ethylic salt, action of methylic iodide on the sodium derivative (BONE and SPRANKLING), T., 848.
- s*- and *as*-Dimethylacetylsuccinic acids,** ethylic salts (BONE and SPRANKLING), T., 848.
- Dimethylacrylic acid.** See Pentenoic acid.
- β -Dimethylacrylonitrile.** See Pentenoic acid, nitrile of.
- Dimethylallylmalonic acid** (*hexylenedicarboxylic acid*), and its metallic salts; also its ethylic salt and its oxime (IPATIEFF), A., i, 481.
- Dimethylamine,** preparation of (MENSCHUTKIN), A., i, 499.
- action of electric glow discharge on mixtures of, with oxygen (MIXTER), A., ii, 267.
- action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1009.
- compounds of, with butyridenecyanhydrin, α -ethylcrotononitrile, α -methylcrotononitrile, and methylisopropylglycollonitrile (HENRY), A., i, 568.
- compounds of, with mercuric chloride (HOFMANN and MARBURG), A., i, 487.
- hydrochloride, action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
- Dimethylamine,** cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
- 3-Dimethylamino-2-aminophenylis-naphthaphenazonium salts** (KEHRMANN and LEVY), A., i, 238.
- Dimethylaminobenzene,** use of, in alkalimetry (GLASER), A., ii, 573.
- p*-Dimethylaminobenzophenone** (LIMPRICHT and SEYLER), A., i, 815.
- Dimethylaminobenzoyletetrachlorobenzoic acid,** and methylic and ethylic salts, and mixed acetic anhydride (HALLER and UMBROVE), A., i, 814.
- Dimethylaminobenzyletetrachlorobenzoic acid** (HALLER and UMBROVE), A., i, 814.
- Dimethylaminoborneol and Dimethylaminocamphor,** salts (DUDEN and PRITZKOW), A., i, 627.
- Dimethyltriaminodiphenyl,** picrate, dibenzylidene, disalicylidene, diacetyl, thiophosgene, and thiourethane derivatives (JACOBSON and KUNZ), A., i, 275.

Dimethylaminodiphenylanthrone

(TÉTRY), A., i, 818.

Dimethylaminodiphenylenethiocarb-**imide** (JACOBSON and KUNZ), A., i, 275.**Dimethylaminoethylic vinylic ether**

(KNORR and MATTHES), A., i, 462.

p-Dimethylaminohydrazobenzene, trans-

formation of (JACOBSON and KUNZ), A., i, 275.

Dimethylaminohydroxybenzophenone

(LIMPRICHT and SEYLER), A., i, 815.

2-Dimethylaminonaphthaprasindone sul-**phate** (KEHRMANN and AEBI), A., i, 527.**Dimethyl-o-aminophenol**, and sulphonic

acid (BAMBERGER and TSCHIRNER), A., i, 682.

Dimethyl-m-aminophenol-saccharein

(MONNET and KOETSCHET), A., i, 213.

4-Dimethylaminophenyl-μ-cyanoazo-**methinephenyl** (ERLICH and SACHS), A., i, 884.**Dimethyl-o-aminophenylic vinylic ether**, and

methiodide and picrolonate (KNORR), A., i, 462.

2-Dimethylaminophenylisonaphtha-**phenazonium-4'-sulphonic anhydride** (KEHRMANN and LOCHER), A., i, 83.**γ-Dimethylamino-αβ-propylenic glycol***(dimethylpropanediolamine)* and its methiodide and picrolonate (KNORR and KNORR), A., i, 412.**Dimethyldiaminodi-o-tolylmethane**

(GNEHM and BLUMER), A., i, 266.

Dimethylaminothiobenzoic acid (WEIN-

MANN), A., i, 204.

Dimethylaniline, formation of; and

salts (MENSCHUTKIN), A., i, 499, 500.

rate of formation of azo-compounds from, and diazobenzenesulphonic acid (GOLDSCHMIDT and BÜCKLE), A., ii, 276.

action of methylic, propylic, isopropylic and allylic iodides on (WEDEKIND), A., i, 351.

action of sulphur on (MÖHLAU and KLOPPER), A., i, 240.

oxide, and its salts (BAMBERGER and TSCHIRNER), A., i, 348.

hydrochloride, action of formaldehyde on (BAMBERGER and TSCHIRNER), A., i, 683.

sesquiodide (BAMBERGER and TSCHIRNER), A., i, 683.**Dimethylaniline**, o-amino-, and acetyl

derivatives (PINNOW), A., i, 684.

and its benzoyl derivative (BAMBERGER and TSCHIRNER), A., i, 683.

o-chloro- (FRIEDLÄNDER), A., i, 351,

Dimethylaniline, 4-chloro-2-amino-, and its picrate, 4-chlorodinitro-, and 4-chloro-3-nitro- (PINNOW), A., i, 203.*m*-chloronitroso-, hydrochloride (JAUBERT), A., i, 684.

o-nitro- (PINNOW), A., i, 684.

o- and *p*-nitro-, and nitroso- (BAMBERGER and TSCHIRNER), A., i, 348.*p*-nitroso- (MATIGNON and DELIGNY), A., i, 127.

condensation with benzylic cyanide (EHRlich and SACHS), A., i, 884.

Dimethylaniline-o- and -p-sulphonic**acids**, o- and *p*-nitro-, and *p*-nitroso- (BAMBERGER and TSCHIRNER), A., i, 682.**Dimethylaniline-p-sulphonic acid**, action

of bromine on (ARMSTRONG; EVANS), P., 1899, 176.

Dimethylaniline-p-thionamic acid

(FRANCKE), A., i, 46.

Dimethylaniline-p-thionamic acid-phen-**ylcarbinol** (FRANCKE), A., i, 46.**Dimethylanilinophenylmethane**, and hy-

drochloride and nitroso-derivative (LIMPRICHT and SEYLER), A., i, 815.

Dimethylanilinothaloylic acid, chlor-

ide and methylic salt, and nitro-, and salts (LIMPRICHT and SEYLER), A., i, 815.

Dimethylanilinetetramethyldiaminodi-**phenylmethane**, *p*-nitroso- (MÖHLAU), A., i, 61; (MÖHLAU and KLOPPER), A., i, 913.**Dimethylaticonic acid**, and its anhy-

dride (FITTIG and PETKOW), A., i, 335.

2:5-Dimethylbenzaldehyde, and its hy-

drazone (BOUVEAULT), A., i, 287.

3:5-Dimethylbenzaldehyde, 2-amino-,

and its phenylhydrazine derivative; preparation of, from mesitylene; and 2-nitro- (BAMBERGER and WEILER), A., i, 124.

3:5-Dimethylbenzaldoxime, 2-amino-,its dibenzoyl derivative, and condensation with *m*-nitrobenzaldehyde (BAMBERGER and WEILER), A., i, 123, 124.**2:4-Dimethylbenzhydrol**, o-amino-, and

its acetyl derivative (DRAWERT), A., i, 648.

1':2-Dimethylbenzimidazole, metho-

chloride and methiodide of (PINNOW and SÄMANN), A., i, 944.

1':2'-Dimethylbenzimidazole (PINNOW),

A., i, 684.

2-chloro-, and its mercurichloride (PINNOW), A., i, 203.

- 1':3'-Dimethylbenzimidazolone-2-carboxylic acid**, and its salts (PINNOW and SÄMANN), A., i, 943.
- 2:4-Dimethylbenzoic acid**, 6-bromo-, iodo-, and 6-iodo- (NOYES), A., i, 285.
- 2:5-Dimethylbenzoic acid** (*p-xylic acid*) (NENCKI), A., i, 880; (VON BAEYER and VILLIGER), A., i, 922.
- 2:6-Dimethylbenzoic acid**, 4-amino-, its hydrochloride, and 4-iodo- (NOYES), A., i, 286.
- 3:5-Dimethylbenzoic acid**. See Mesitylenic acid.
- 2:4-Dimethylbenzonitrile** (*xytonitrile*), action of cuprous chloride on (RA-BAUT), A., i, 557.
- 2:4-Dimethylbenzophenone**, synthesis of (MEISSEL), A., i, 880.
- o*-amino-, and its benzoyl derivative (DRAWERT), A., i, 642.
- 2:5-Dimethylbenzylideneaniline** (BOUVEAULT), A., i, 287.
- Dimethylbornylamine**, hydrochloride, platinochloride (FORSTER), T., 944; P., 1899, 72.
- Dimethylbornylammonium iodide** (FORSTER), T., 951.
- Dimethylbrazilein** (HERZIG), A., i, 381.
- Dimethylbrazilin**, oxidation product of (GILBODY and PERKIN), P., 1899, 75.
- Dimethyltetrabromocyclohexane-1:3:5-trione**. See Filicic acid, *tetrabromo*-.
- Dimethylbutanetricarboxylic acid**, and its anhydro-acid, and silver, calcium, and ethylic salts (PERKIN and THORPE), T., 902; P., 1899, 184.
- cyano-, ethylic salt, and its hydrolysis (PERKIN and THORPE), T., 900; P., 1899, 184.
- Dimethylbutyric acids**. See Hexoic acids.
- Dimethylcitraconic acid**, and anhydride (FITTIG and KRAFFT), A., i, 334; (SEMENOFF), A., i, 793.
- γ-Dimethylcrotononitrile**. See Hexenoic acid, nitrile of.
- Dimethyldianthrane** (ORNDORFF and MEGRAW), A., i, 819.
- 2:6-Dimethyl-*m*-diazine** (*dimethylpyrimidine*), amino-. See Cyanmethine.
- 4:6-Dimethyl-*m*-diazine** (GABRIEL and COLMAN), A., i, 639.
- 4:6-Dimethyl-*m*-diazine-2-carboxylic acid** (GABRIEL and COLMAN), A., i, 639.
- αβ-Dimethyldibenzyl**, formation of (MORITZ and WOLFFENSTEIN), A., i, 424.
- Di-*o*-methyldibenzyl** and **Di-*p*-methyldibenzyl** (MORITZ and WOLFFENSTEIN), A., i, 910.
- Dimethylditerbutylindigotin**, preparation of (KONOWALOFF), A., i, 891.
- 1':2'-Dimethyl-3':3'-diethylindoline** (PLANCHER), A., i, 451.
- Dimethyldihydroresorcinol**, and silver and bromo-derivatives, and ethylic ether (CROSSLEY), T., 772; P., 1898, 247.
- from action of ethylic sodiomalonate on mesityl oxide (CROSSLEY), P., 1899, 52.
- electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- oxidation of, by potassium permanganate (VORLÄNDER and GÄRTNER), A., i, 259.
- Dimethyldihydroresorcinol**, bromo-, and action of hypobromite on (KOMPPA), A., i, 574.
- Dimethyldihydroresorcylic acid**, ethylic salt of (CROSSLEY), T., 772.
- methylic salt, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Dimethyl diketone** (*diacetyl*), dibromo-, tetrabromo-, and dichloro- (KELLER and MAAS), A., i, 12.
- Dimethyleneasparagine** and copper salts (SCHIFF), A., i, 870.
- p*-Dimethyleneditoluidine**, formation of (LÖB), A., i, 123.
- Dimethylenimine**, constitution of (HOWARD and MARCKWALD), A., i, 749.
- 1:3:5-Dimethylethylbenzene**, and *di*-nitro-derivative (GATTERMANN, FRITZ, and BECK), A., i, 492.
- 1:3:5-Dimethylethylbenzoic acid** and amide (GATTERMANN, FRITZ, and BECK), A., i, 492.
- Dimethylethylbornylammonium iodide** (FORSTER), T., 947.
- Dimethylethylcarbinol**. See *tert*-Amylic alcohol.
- Dimethylethylcarbinyl cyanide**. See Hexonitrile.
- Dimethylethylene**. See Butylene.
- 1:3:5-Dimethylethylcyclohexane** (*β-decanaphthene*), and amino-, bromo-, bromonitro-, chloro-, dichloro-, and nitro-derivatives (MARKOWNIKOFF and RUDEWITSCH), A., i, 581.
- 1:3-Dimethyl-5-ethylcyclohexane-4-ol** (*β-decanaphthenol*) (MARKOWNIKOFF and RUDEWITSCH), A., i, 582.
- 1':3'-Dimethyl-3'-ethylindolinone**, *di*-bromo- (PLANCHER), A., i, 452.
- 1':3'-Dimethyl-3'-ethyl-2'-methyleneindoline**, and benzoyl derivative (PLANCHER), A., i, 452.

- 3':3'-Dimethyl-1'-ethyl-2'-methylene-indoline**, and benzoyl derivative (PLANCHER and BERTINELLI), A., i, 455.
- s-Dimethylethynaphthene**, 1:3:5-Dimethylethylcyclohexane.
- Dimethylethyl-rosinduline**, and *-isoro-*induline (SCHAPOSCHNIKOFF), A., i, 506.
- Dimethylfumaric acid**. See β -Methylmesaconic acid.
- iso-Dimethylfurfurandicarboxylic acid**. See *iso*-Carbopyrotritaric acid.
- Dimethylfurodiazole**. See 2:5-Dimethyl-1:3:4-oxdiazole.
- $\alpha\alpha$ -Dimethylglutaconic acid** (HENRICH), A., i, 469, 794.
supposed formation of (LAWRENCE), P., 1898, 252.
- $\alpha\gamma$ -Dimethylglutaconic acid**, from the action of hydriodic acid on hydroxydimethylglutaric acid, and the action of acetic chloride on it (REFORMATSKY), A., i, 482.
- $\alpha\alpha$ -Dimethylglutaramic acid**, sodium salt, action of alkaline hypobromite and hydrobromic acid on (BLAISE), A., i, 480.
- $\beta\beta$ -Dimethylglutar-anil and -anilic acid** (CROSSLEY), T., 777.
- $\alpha\gamma'$ -Dimethylglutaric acids** (*pentanedicarboxylic acids*), formation of (BONE and SPANKLING), T., 850.
- $\beta\beta$ -Dimethylglutaric acid and anhydride** (CROSSLEY), T., 777, 778.
from hydrolysis of ethylic $\beta\beta$ -dimethylpropanetetracarboxylate (LAWRENCE), P., 1899, 62.
preparation of; also dimethylic and diethylic salts (KOMPPA), A., i, 573.
ethylic salt, condensation of, with ethylic oxalate (DIECKMANN), A., i, 676.
- $\beta\beta$ -Dimethylglutaric acid**, α -bromo-, ethylic, hydrogen ethylic and methylic salts; also action of potash and of diethylaniline on (PERKIN and THORPE), T., 54; P., 1898, 108.
- $\alpha\alpha$ -dibromo-**, methylic salt, properties of (PERKIN and THORPE), P., 1898, 108.
- α -cyano-**, ethylic salt, action of methylic iodide on the sodium derivative of (PERKIN and THORPE), T., 63; P., 1898, 251.
ethylic and hydrogen ethylic salts of (PERKIN and THORPE), T., 52.
- γ -cyano-**, ethylic salt, condensation of, with ethylic bromacetate (PERKIN and THORPE), T., 900; P., 1899, 184.
- $\alpha\alpha$ -Dimethylglutaric anhydride**, action of ammonia on (BLAISE), A., i, 480.
- $\beta\beta$ -Dimethylglutaric anhydride**, and action of bromine on (PERKIN and THORPE), T., 54; P., 1898, 107.
- $\beta\beta$ -Dimethylglutarimide** (PERKIN and THORPE), T., 53.
- Dimethylglycollonitrile**. See α -Hydroxyisobutyronitrile.
- Dimethylgranatenic acid**, dimethylic salt (PICCININI), A., i, 964.
- 2:6-Dimethylheptan-5-onoic acid**, from carvenone: its oxime (TIEMANN and SEMMLER), A., i, 224.
- 2:6-Dimethyl-2-heptene-6-ol**. See Nonenylc alcohols.
- Dimethylcyclohexane** (*dimethylhexamethylene*, *dimethylhexanaphthene*) (ZELINSKY and NAUMOW), A., i, 196.
action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.
- 1:3-Dimethylcyclohexane-2-carboxylic acid** (*hexahydro-xylic acid*) [$\text{Me}_2\text{COOH} = 1:3:2$], and α -bromo- and chloride (NOYES), A., i, 749.
- Dimethylcyclohexanediones**, two isomerides from ethylic dimethylsuccinylsuccinate (ZELINSKY and NAUMOW), A., i, 196.
- 1:1-Dimethylcyclohexanone-3** and semicarbazone (LESER), A., i, 743.
- 1:3-Dimethylcyclohexanone-2** (1:3-Dimethyl-2-ketohexamethylene) oxime (NOYES), A., i, 284.
- 1:3-Dimethylcyclohexanone-4**, hydroxylamino-oxime, and nitroso-oxime of (HARRIES and MATFUS), A., i, 583.
- γ -Dimethylhexan- δ -onoic acid** (γ -acetyl-dimethylbutyric acid) (BLAISE), A., i, 332; (BLANC), A., i, 536, 630.
- 1:3-Dimethylcyclo- Δ^1 -hexene-2-carboxylic acid** (Δ^1 -tetrahydro-xylic acid) (NOYES), A., i, 759.
- 1:3-Dimethyl-5-cyclohexenone**, dimeric form of, and salts (KNOEVENAGEL and REINECKE), A., i, 340.
- 3:5-Dimethyl- Δ^2 -cyclohexenone**, reduction of (HARRIES and KAISER), A., i, 579.
- Dimethylhydrofurfurancarboxylic acid**, and salts (FITTING and DE HAVENBOYD), A., i, 191.
- 1:2-Dimethyl-3-hydroxyethylpiperidine** (*N-methyl-a-pipecolyl- β -methylalkine*) (LADENBURG and BRANDT), A., i, 305.
- 1:2-Dimethyl-3-hydroxyethyl- Δ_2 -tetrahydropyridine** (*N-methyl-a-pipecolyl- β -methylalkine*) (LADENBURG and BRANDT), A., i, 305.

- Dimethyliminazononenaphthaphenazine**, (KEHRMANN and ZIMMERLI), A., i, 80.
- 1:3-Dimethylindazole**, and 3-chloro-derivative (BAMBERGER), A., i, 543, 544.
- 3'-amino- and its benzylidene derivative, thiocarbamide, and benzene-sulphonamide (BAMBERGER), A., i, 544.
- Dimethylindazoleazo- β -naphthol** (BAMBERGER), A., i, 545.
- 1:3-Dimethylindazoletriazolen** (BAMBERGER), A., i, 722.
- Dimethylindazolylazo- β -naphthol** anhydride (BAMBERGER), A., i, 722.
- Dimethylindazoneoxime** (BAMBERGER and WEILER), A., i, 124.
- Dimethylindigotin**, preparation of (KONOWALOFF), A., i, 891.
- 3':3'-Dimethylindolenine-2'-formonitrile** and -2'-formoxime (PLANCHER and BETTINELLI), A., i, 543.
- 3':3'-Dimethylindolinone** (PLANCHER and BETTINELLI), A., i, 543.
- Dimethylitaconic acid**. See Teraconic acid.
- Dimethylketohexamethylene**. See Dimethylcyclohexanone.
- 4:4-Dimethyl-3-keto-5-pyrrolidone**, and its monoxime and phenylhydrazone (CONRAD and HOCK), A., i, 632.
- Dimethylævulic acid**, preparation of (BLAISE), A., i, 332.
- Dimethylariciresinol** (BAMBERGER and LANDSIEDL), A., i, 929.
- Dimethylmaleic acid**. See Pyrocinchonic acid.
- Dimethylmesaconic acid** (FITTIG and KRAFT), A., i, 334; (SEMENOFF), A., i, 792, 793.
- 3-Dimethyl-4-methylpentane-2:5-olidoic acid**, and bromo-derivative (BALBIANO), A., i, 867).
- 2:3'-Dimethylnaphthalene** and **2:3'-Dimethyl- α -naphthaquinone** (VON BAEYER and VILLIGER), A., i, 922.
- 2:3'-Dimethyl- α -naphthoic acid** and its tribromo-derivative (VON BAEYER and VILLIGER), A., i, 922.
- Dimethylnitramine**, constitution of (LACHMANN), A., i, 538.
- Dimethyl-o-nitraniline** (FRIEDLÄNDER), A., i, 350.
- $\beta\mu$ -Dimethylloxazoline** (UEDINCK), A., i, 498.
- 2:5-Dimethyl-1:3:4-oxdiazole** (*dimethylfurodiazole*) (STOLLE), A., i, 457.
- Dimethylisoparaconic acid**. See *iso-Terebic acid*.
- Dimethylcyclopentane** (*dimethylpentamethylene*), action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.
- Dimethylcyclopentanecarboxylic acid**, cyano-, ethylic salt (NOYES), A., i, 929.
- 2:2-Dimethylcyclopentane-4:5-dione-1:3-dicarboxylic acid**, ethylic and methylic salts, and phenazine derivatives (DIECKMANN), A., i, 676.
- Dimethylphenomorpholinium** iodide (KNORR), A., i, 462.
- Dimethylphenylosotriazole**, oxidation of (PONZIO), A., i, 718.
- Dimethylphloroglucinol**, obtained from filicic acid (BOEHM), A., i, 32.
- chloro-, and its triacetyl derivative (SCHNEIDER), A., i, 680.
- 3:5-Dimethylphthalic acid** and anhydride (NOYES), A., i, 286.
- Dimethylpiperazine phosphate** (MOREL), A., i, 493.
- 2:6-Dimethylpiperidine**, and salts (MARCUSE and WOLFFENSTEIN), A., i, 937.
- 1:1-Dimethylcyclopropane** (1:1-dimethyltrimethylene (GUSTAVSON and POPPER), A., i, 263.
- Dimethylcyclopropane-1:2-dicarboxylic acid**. See Caronic acid.
- Dimethylpropanediolamine**. See γ -Dimethylamino- $\alpha\beta$ -propylenic glycol.
- $\beta\beta$ -Dimethylpropanetetracarboxylic acid**, ethylic salt (LAWRENCE), P., 1899, 62.
- $\beta\beta$ -Dimethylpropanetricarboxylic acid**, from hydrolysis of ethylic $\beta\beta$ -dimethylpropanetetracarboxylate (LAWRENCE), P., 1899, 62.
- Dimethylpropionic acid**. See Valeric acid.
- β -Dimethylpropylamine**. See Amylamine.
- Dimethylpropylammonium iodide** (FORSTER), T., 949.
- 3':3'-Dimethyl-2'-isopropylindolenine** (PLANCHER), A., i, 455.
- Dimethylpropylmethane**. See Hexane.
- 3:5-Dimethylpyrazole-1-carbonamidine** nitrate (THIELE and DRALLE), A., i, 8.
- 2:6-Dimethylpyridine**, reduction of (MARCUSE and WOLFFENSTEIN), A., i, 937.
- 2:6-Dimethylpyridine-4-hydrazine** (4-*lutidylhydrazine*) (MARCKWALD), A., i, 72.
- Dimethylpyrimidine**. See Dimethyl-*m*-diazine.
- 2:6-Dimethylpyrone**, and salts (COLLIE and TICKLE), T., 712; P., 1899, 148.
- hydrochloride and oxalate, electrical conductivities of (COLLIE and TICKLE), T., 710; P., 1899, 148.
- Dimethylpyrrodiazole**. See 2:5-Dimethyl-1:3:4-triazole.

- 3: 3-Dimethylpyrrolidone**, formation of, from salts of γ -amino- α -dimethylbutyric acid (BLAISE), A., i, 480.
- Dimethylquinitol**, *dibromo*-, and *diiodo*- (ZELINSKY and NAUMOW), A., i, 196.
- Dimethylrosinduline** (SCHAPOSCHNIKOFF), A., i, 432.
- Dimethylsaffranine** (SCHAPOSCHNIKOFF), A., i, 432.
- Dimethylsalicyl-aldehyde**, and its oxime (BAMBERGER and WEILER), A., i, 124.
- $\alpha\alpha$ -Dimethylsuccinic acid** (*isobutanedicarboxylic acid*), formation of (BONE), P., 1899, 5.
and anhydride, anilic acid, and calcium salt (BONE and SPRANKLING), T., 848.
- $\alpha\alpha$ -Dimethylsuccinic acid**, cyano-, action of heat on; also action of heat on its monethylic salt (BLAISE), A., i, 480.
ethylic salt, formation and hydrolysis of; also the action of methylic iodide on its sodium derivative (BONE), P., 1899, 5.
- cis*- and *trans*- $\alpha\beta$ -Dimethylsuccinic acids**, and anhydrides, anilic acids, and calcium salts (BONE and SPRANKLING), T., 848.
- $\alpha\beta$ - and $\beta\beta$ -Dimethylsuccinic acids**, cyano-, ethylic salts; hydrolysis; also action of ethylic iodide on the latter (BONE and SPRANKLING), T., 853.
- $\alpha\beta$ -Dimethylsuccinimide**, formation of (BLAISE), A., i, 480.
- Dimethyltartaric acid**, *dibromo*-, amide (KELLER and MAAS), A., i, 12.
- 2: 6-Dimethylterephthalic acid**, 4-methylic salt and amic acid (NOYES), A., i, 286.
- 2: 3-Dimethyltetrahydropyridine**, and salts (SACHS), A., i, 302.
- Dimethyltetrahydroresorcinol**, bromo- (CROSSLEY), T., 776.
- Dimethyltetramethylene**, 1:3-disulphide, and 1:8-disulphone (AUTENRIETH and WOLFF), A., i, 580.
- Dimethyltetrazoline**, from action of heat on acetylhydrazine (PELLIZZARI), A., i, 858.
- 2: 4- and 3: 4-Dimethylthiobenzanilides** (BAMBERGER), A., i, 694.
- Dimethylthiocarbamide**, formation of (WALLACH), A., i, 659.
- 2: 5-Dimethyl-1: 3: 4-thiadiazole** (STOLLÉ), A., i, 457.
- Dimethyltolueneazammonium**, silver iodides of (FRANKFORTER and KELLER), A., i, 781.
- Dimethyl-*o*-toluidine**, 4-nitro- (GNEHM and BLUMER), A., i, 266.
- Dimethyl-*o*- and *p*-toluidine oxides** (BAMBERGER and TSCHIRNER), A., i, 348.
- Dimethyl-*p*-toluidine**, formation of (LÖB), A., i, 123.
*di*amino-, its salts and diacetyl derivative; *m*-*dinitro*-; *m*-*diamino*-, its salts and diacetyl derivative (PINNOW and MATCOVITCH), A., i, 49.
- 2: 5-Dimethyl-1: 3: 4-triazole** (*dimethylpyrroldiazole*) (STOLLÉ), A., i, 457.
- Dimethyltricarballic acid**, from camphocenic acid (JAGELKI), A., i, 629.
- Dimethyltrimethylene**. See *Dimethylcyclopropane*.
- β -Dimethyltrimethylene**. See *Amylene*.
- Dimethylurazole** (CUNEO), A., i, 9.
- 1: 9-Dimethyluric acid** (FISCHER and ACH), A., i, 393.
- 3: 9-Dimethyluric acid** (α -*dimethyluric acid*) (FISCHER), A., i, 394.
- Dimethyl-*m*-xylydine** (FRIEDLÄNDER and BRAND), A., i, 351.
- Dimorphine**, ethylenic ether (MERCK), A., i, 649.
- Dinaphthaphenylsaffranine** (FISCHER and HEPP), A., i, 79.
- Dinaphthaprasindone** and acetyl derivative and salts (KEHRMANN and SUTHERST), A., i, 528.
- Dinaphthoquinone**, from *dibromo- α -naphthol* (LIEBERMANN and SCHLOSSBERG), A., i, 372.
oxime (MELDOLA), A., i, 372.
- $\beta\beta$ -Dinaphthol**, constitution of, and its butyrate, phthalate, and propionate, and *dibromo*-derivative (FOSSE), A., i, 817, 818.
- α - and $\alpha\beta$ -Dinaphthylbenzidine** (MERZ and STRASSER), A., i, 917, 918.
- α - and β -Dinaphthylcarbamides** (WALTHER and WLODKOWSKI), A., i, 591.
- Dinaphthylene oxide**, *dichloro*- (FOSSE), A., i, 818.
- Dinaphthyllic diisopropyl ether** and ethylenic ether (FOSSE), A., i, 818.
- $\beta\beta$ -Dinaphthyllic benzylidenic ether** (FOSSE), A., i, 818.
methylenic and ethylenic ethers, diacetyl derivative (FOSSE), A., i, 529.
- Di- β -naphthylsulphonehydrazide** (CURTIUS and LORENZEN), A., i, 149.
- 1: 1- and 2: 2-Dinaphthylthiosemicarbazides** (MARCKWALD), A., i, 505.
- 1: 2-Dinaphthylthiosemicarbazide**, and the thiobiazolone (MARCKWALD), A., i, 505.
- Dionine**. See *Morphine ethylenic ether*.
- Diopside** (*salite*) from Mexico (LENK), A., ii, 305.
as a weathering product of olivine (BRAUNS), A., ii, 36.

- Diorite-laterite** from the Seychelles (BAUER), A., ii, 565.
- 6 : 8-Dioxy-1 : 9-dimethylpurine**, and 2-chloro-derivative (FISCHER and ACH), A., i, 393.
- 6 : 8-Dioxy-7 : 9-dimethylpurine**, 2-chloro- (FISCHER and ACH), A., i, 393.
- Dioxymethylene**. See Diformaldehyde.
- 6 : 8-Dioxy-9-methylpurine**, and 3-amino-, and 2-chloro-derivatives (FISCHER and ACH), A., i, 393.
- Dioxysuccinic acid**, ethylic salt, action of carbamide and thiocarbamide on; also the thioureine (GEISENHEIMER and ANSCHÜTZ), A., i, 574.
- 6 : 8 Dioxy-1 : 7 : 9-trimethylpurine**, 2-chloro- (FISCHER and ACH), A., i, 393.
- Dipentadecyl-carbamide** and -thio-carbamide (JEFFREYS), A., i, 730.
- Dipentamethenyl** (MEISER), A., i, 742.
- Dipentamethenylpinacolin** and oxime (MEISER), A., i, 742.
- Dipentamethenylpinacone**, and its anhydride (MEISER), A., i, 742.
- Dipentene**, from lemon-grass oil (STIEHL), A., i, 66.
from *l*-linalool (STEPHAN), A., i, 68.
behaviour of, towards formaldehyde (KRIEWITZ), A., i, 298.
- Diphenaceto- α -phenylene diamide** (WALTHER and PULAWSKI), A., i, 640.
- Diphenacyl**, chloro-, two isomeric forms of; iodo- (PAAL and STERN), A., i, 367, 368.
- Diphenacylacetic acid** (*$\beta\beta$ -dibenzoyliso-butyric acid*) (KLOBB), A., i, 114.
- Diphenacylcyanacetic acid** (*$\beta\beta$ -dibenzoylcyanisobutyric acid*), propylic salt (KLOBB), A., i, 113.
- 9 : 10-Diphenacyldihydrophenanthrene**, 9 : 10-diamino-, hydrolysis of (JAPP and MELDRUM), T., 1032; P., 1899, 166.
- Diphenamide** (MATHEWS), A., i, 57.
- p*-Diphenetolcarbamide**, formation of (FOGLINO), A., i, 132.
- Diphenetylacetic acid**, and its salts (FRITSCH and FELDMANN), A., i, 601.
- Diphenetyl-trichlorethane** and -dichloro-ethylene (FRITSCH and FELDMANN), A., i, 600.
- Diphenimide**, formation of (MATHEWS), A., i, 57.
- $\alpha\epsilon$ -, $\alpha\zeta$ -, and $\beta\epsilon$ -Diphenoxyhexanes**, formation of (SOLONINA), A., i, 561, 663, 681, 682.
- α -Diphenoxynonane**, and action of hydrobromic and hydrochloric acids on (SOLONINA), A., i, 562.
- $\alpha\alpha$ -Diphenoxyoctane**, formation of (SOLONINA), A., i, 663.
- $\alpha\eta$ - and $\alpha\theta$ -Diphenoxyoctane** (SOLONINA), A., i, 562.
- $\alpha\delta$ -Diphenoxypentane**, and **$\alpha\gamma$ -Diphenoxypentane** (SOLONINA), A., i, 681.
- Diphenyl**, condensation of, with ethylic chloroglyoxylate (ROUSSET), A., i, 292.
- 5 : 2 : 4'-bromodiamino-**, salicylidene, diformyl, and diacetyl derivatives (JACOBSON and GROSSE), A., i, 274.
- 5 : 2 : 4'-chlorodiamino-**, disalicylidene, dibenzylidene, diacetyl, and diformyl derivatives (JACOBSON and STRÜBE), A., i, 273.
- 2 : 5 : 4'-triiodo-** (JACOBSON, FERTSCH, and HEUBACH), A., i, 274.
- 5 : 2 : 4'-iododiamino-**, dihydrochloride, salicylidene, and *p*-nitrobenzylidene derivatives (JACOBSON, FERTSCH, and HEUBACH), A., i, 274.
- Diphenylacetic acid**, preparation of, from benzimidoxylphenylacetic acid and from triphenyloxazolone (JAPP and FINDLAY), T., 1030; P., 1899, 165.
ethylic salt, velocity of formation of (SUDBOROUGH and LLOYD), T., 478; P., 1899, 3.
- Diphenylaceto- α -pyrone** (RUHEMANN), T., 416; P., 1899, 15.
- Diphenylamidine** (WHEELER and JOHNSON), A., i, 354.
amino- (MUTTELET), A., i, 500.
- Diphenylamidinoxanilide**, crystalline form of (ANSCHÜTZ and STIEPEL), A., i, 573.
- Diphenylamine**, molecular depressions in, and latent heat of fusion of (STILLMAN and SWAIN), A., ii, 728.
cryoscopic behaviour of, in diphenylmethane solution (BRUNI and GORNI), A., ii, 731.
osmotic pressure of ethereal solutions of (GOODWIN and BURGERS), A., ii, 274.
equilibrium between benzene, naphthalene, and (BRUNI), A., ii, 406.
hydrochloride, action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
preparation of potassium derivative of (HÄUSSERMANN), A., i, 126.
- Diphenylamine**, *p*-bromo-*p*-amino- (JACOBSON and GROSSE), A., i, 274.
- 5 : 2-bromamino-**, hydrochloride, azimide, methenyl, and salicylidene derivatives (JACOBSON and GROSSE), A., i, 273.
- 5 : 2-bromonitro-** (JACOBSON and GROSSE), A., i, 274.

- Diphenylamine**, *p*-chloro-*p*-amino-, salicylidene, benzylidene, acetyl, and diformyl derivatives, also the thiocarbamide (JACOBSON and STRÜBE), A., i, 273.
- 5 : 2-iodoamino-; stilbazonium base, methenyl derivative ; 5 : 2-iodonitro- (JACOBSON, FERTSCH, and HEUBACH), A., i, 274.
- p*-nitronitroso-, *p*-dinitro-*o*-*p*-dinitro-, and *tr*initro- (STOERMER and HOFFMANN), A., i, 44.
- Diphenylamine-blue**, formation of (WEDEKIND and GONSWA), A., i, 806.
- Diphenylamine-*o*-carboxylic acid**, nitroso-(KÖNIG and REISSERT), A., i, 458.
- Diphenylaminotriazine**, and its acetyl derivative (THIELE and BIHAN), A., i, 47.
- Diphenylanthrone** (HALLER and GUYOT), A., i, 221.
- p*-**Diphenylbenzamide** (GATTERMANN and KJELLBOM), A., i, 510.
- Diphenylbenzenyl-amidine and -methylamide**, and their diamino-derivative, as colouring matters (NOELTING and KUNTZ), A., i, 354.
- ac*-**Diphenyl-*c*-benzylthiobiuret** (DIXON), T., 407 ; P., 1899, 64.
- Diphenylbistrimethylenediimine** (SCHOLTZ), A., i, 831.
- Diphenyldibromodihydrofurfuran** (THIELE and RÖSSNER), A., i, 613.
- Diphenylbutadiene**, preparation of (THIELE and SCHLEUSSNER), A., i, 612.
- 1 : 1-Diphenylbutene-1-one**, and its oxime (KLAGES and FANTO), A., i, 616.
- αβ*-**Diphenylbuteninecarboxylic acid** (THIELE and RÖSSNER), A., i, 613.
- βγ*-**Diphenylbutyrolactoneacetic acid**, *β*-bromo- (STOBBE and RUSSWURM), A., i, 903.
- Diphenylcarbamic acid**, potassium salt (HÄUSSERMANN), A., i, 126.
- Diphenylcarbamide** (*carbanilide*), formation of (JOUVE), A., i, 420.
- oxidation of (OECHSNER DE CONINCK), A., i, 421.
- Diphenylcarbamide**, *m*- and *p*-dibromo- (CURTIUS and PORTNER), A., i, 136.
- β*-*p*-chloro-, *β*-*m*-bromo-, and *β*-*o*- and *m*-nitro- (MANUELLI and COMAN-NUCCI), A., i, 887.
- o*-, *m*-, and *p*-dichloro-, *o*-, *m*-, and *p*-dibromo-, and *p*-diiodo- (VITTENET), A., i, 693.
- di*-*m*-nitro-, three crystalline forms of (OFFRET and VITTENET), A., i, 886.
- di*-*p*-nitro-, *di*-*p*-amino-, and hydrochloride ; *di*-*m*-nitro-, *di*-*m*-amino-, and stannochloride ; *di*-*o*-nitro-, and *di*-*o*-amino- (VITTENET), A., i, 692.
- Diphenylcarbamedicarboxylic acid** (ERDMANN), A., i, 940.
- Diphenylcarbamideoxime** (STOLLÉ), A., i, 885.
- α*-**Diphenylcarbamyli-*β*-phenylthiosemicarbazide** (DIXON), T., 399 ; P., 1899, 63.
- Diphenylcarbamyli-thiocarbimide** (DIXON), T., 393 ; P., 1899, 63.
- n*-**Diphenylcarbamyli-thiourantoin** (DIXON), T., 398 ; P., 1899, 63.
- Diphenylcarbinol**, preparation of (BODROUX), A., i, 678.
- p*-**Diphenylcarboxylic acid**, formation of (COLLET), A., i, 56.
- Diphenylcrotonolactone**, two isomeric forms of (THIELE), A., i, 217, 612.
- γ*-**Diphenylcrotonolactone** (STOBBE and NOETZEL), A., i, 901.
- βγ*-**Diphenylcrotonolactoneacetic acid**, and salts (STOBBE and RUSSWURM), A., i, 903.
- γ*-**Diphenylcrotonolactonecarboxylic acid**, and salts (STOBBE and NOETZEL), A., i, 901.
- Diphenyldiacetamide**, formation of (MATHEWS), A., i, 57.
- Diphenyldianilinobutene** (THIELE and RÖSSNER), A., i, 614.
- Diphenyldiazoxole**, from action of heat on dibenzoylhydrazine (PELLIZZARI), A., i, 858.
- Diphenyldibenzylidihydropyrazine** (FRANCIS), T., 870.
- Diphenyldibenzylketodimethylamine** (FRANCIS), T., 870.
- 4 : 3'-Diphenyldicarboxylic acid**, and methylic salt (WEILER), A., i, 491.
- 4 : 4'-Diphenyldicarboxylic acid** (WEILER), A., i, 491.
- Diphenyl-4 : 4'-dihydrazine-3 : 3-dicarboxylic acid** (BÜLOW and VON REDEN), A., i, 150.
- Diphenyldihydrazoneacetylacetone** (FAVREL), A., i, 438.
- Diphenyldihydrazonecyanooacetic acid**, ethylic and methylic salts (FAVREL), A., i, 58.
- Diphenyldihydrazoneomalonic acid**, methylic and ethylic salts (FAVREL), A., i, 521.
- Diphenyldihydrodicarbolutidinic acid**, ethylic salt (BERTINI), A., i, 897.
- Diphenyldihydrofurfuran** (THIELE and RÖSSNER), A., i, 612.
- Diphenyl-1 : 4-dihydroxynaphthylmethane** (MÖHLAU and KLOPPER), A., i, 913.
- 1 : 2-Diphenyl-4 : 5-diketotetrahydropyrroline**, 4-anil of (GARZAROLLI-THURNLACKH), A., i, 823.

Diphenyldimethylethylenediamine

(BISCHOFF), A., i, 279.

1:3-Diphenyl-4:5-dimethyl-5-pyrazol-ineacetic acid (BOSSI), A., i, 522.

Diphenylisodithiodiazolone (BUSCH and BECKER), A., i, 953.

Diphenylene disulphide, preparation of (GENVRESSE), A., i, 147.

and disulphone (COHEN and SKIRROW), T., 888; P., 1899, 183.

iso-Diphenylene disulphone (GENVRESSE), A., i, 147.

Diphenylethylenediamine, *dinitroso-* (BISCHOFF), A., i, 280.

Diphenylethylenehydrazine (FREER), A., i, 358.

***α-c*-Diphenyl-*c*-ethylthiobiuret** (DIXON), T., 405; P., 1899, 64.

***e*-Diphenyl-*α*-ethylthiobiuret** (DIXON), T., 396; P., 1899, 63.

Diphenylfluorindine, isomeride of, and salts (KEHRMANN and DURET), A., i, 84.

Diphenylfurfuran, *p*-*dibromo*-, *tri*-*bromo*-, and *pentabromo*- (THIELE and RÖSSNER), A., i, 613.

Diphenylglyoxylic acid, and ethylic salt, and phenylimide (ROUSSER), A., i, 222.

Diphenylhexahydropyrimidine

(SCHOLTZ), A., i, 881.

1:6-Diphenylhexatriene-3-carboxylic acid (THIELE), A., i, 216.

Diphenylhydrazine, monohydrobromide, and monohydrochloride (LE CANU), A., i, 808.

Diphenylhydroxyethylamines, stereo-isomeric, preparation of, and hydrochlorides (ERLENMEYER), A., i, 760.

iso-Diphenylhydroxyethylamine, and hydrochloride (ERLENMEYER), A., i, 760.

d-, and *l*-, and tartrates, specific rotations of (ERLENMEYER), A., i, 882.

2':4'-Diphenylimino-3'-phenyltetrahydroquinazoline (MCCOY), A., i, 360.

Diphenyliodonium hydroxide, conductivity and hydrolysing power of (SULLIVAN), A., ii, 398.

Diphenylitaconic acid, and salts (STOBBE), A., i, 900.

***γ*-Diphenylitaconic anhydride** (STOBBE and KOHLMANN), A., i, 901.

Diphenylmethane, preparation of (VERLEY), A., i, 207.

from condensation of *dichlorotrioxymethylene* and *methylene chlorhydrin* with benzene (GRASSI-CRISTALDI and MASELLI), A., i, 410.

Diphenylmethane, action of chromyl chloride on (WEILER), A., i, 519.

nitration of (KONOWALOFF), A., i, 844.

Diphenylmethane, *p*-*diamino*- (BAMBERGER and TSCHIRNER), A., i, 348.

Diphenylmethyamine, action of methylic iodide on (WEDEKIND), A., i, 351.

Diphenylmethyleneaniline, preparation of (NÄGELI), A., i, 910.

1:4-Diphenyl-3-methyl-5-pyrazolone (BECKH), A., i, 212.

1:5-Diphenyl-3-methylpyrrolone (KLOBB), A., i, 511.

***ac*-Diphenyl-*e*-methylthiobiuret** (DIXON), T., 401; P., 1899, 64.

***e*-Diphenyl-*α*-methylthiobiuret** (DIXON), T., 396, 492; P., 1899, 63, 64.

Diphenylnitrosamine, heat of combustion of (MATIGNON and DELIGNY), A., i, 127.

action of zinc ethyl on (LACHMANN), A., i, 588.

***γ*-Diphenylparaconic acid**, *β*-*bromo*-, ethylic salt (STOBBE), A., i, 901.

1:2-Diphenylcyclopentane (WISLIGENUS and KUHN), A., i, 60.

***αδ*-Diphenyl-*αγ*-pentanolide** (THIELE and MEISENHEIMER), A., i, 615.

***αδ*-Diphenyl-*Δα*-pentaenoic acid** (THIELE and MEISENHEIMER), A., i, 615.

***αδ*-Diphenyl-*Δβ*-pentaenoic acid**, and salts (THIELE and MEISENHEIMER), A., i, 614, 615.

αδ-*dibromo*-, and its methylic salt (THIELE and RÖSSNER), A., i, 612.

1:3-Diphenylpyrazoline, 5-*imino*-, and its salts, acetyl derivative, and nitroso-derivative (SEIDEL), A., i, 138.

1:3-Diphenylpyrazolone, 4-*isonitroso*-, (SEIDEL), A., i, 138.

4:6-Diphenyl-2-pyrone-5-carboxylic acid, ethylic salt (RUHEMANN) T., 253; P., 1899, 6.

action of alcoholic ammonia on (RUHEMANN), T., 414; P., 1899, 55.

p-*nitro*-, ethylic salt (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.

***γ*-Diphenylpyrotartaric acid**, and salts (STOBBE and KOHLMANN), A., i, 901.

Diphenylstibine chloride (HASENBÄUMER), A., i, 209.

Diphenylsulphone, *iodiodoso*-, and *di*-*iodoxy*- (WILLGERODT and WALDEYER), A., i, 606.

Diphenyltetrahydroglyoxaline (BISCHOFF), A., i, 279.

Diphenyltetrahydropyrone oxime (PETRENKO-KRITSCHENKO and ROSENZWEIG), A., i, 707.

- Diphenyltetramethylene disulphide and disulphone** (AUTENRIETH and WOLFF), A., i, 580.
- α -Diphenyl- β -thioallophanic acid**, benzylie salt of (DIXON), T., 400; P., 1899, 64.
- ϵ -Diphenylthiobiuret** (DIXON), T., 397; P., 1899, 63.
- Diphenylthiocarbamide**, oxidation of (OECHSNER DE CONINCK), A., i, 421.
- Diphenylthiocarbazine**, electrolytic preparation of (SCHALL and KRASZLER), A., i, 414.
- 2:5-Diphenyl-1:3:4-thiodiazole** (STOLLÉ), A., i, 457.
- Diphenylthiofluorescein** (GATTERMANN and RIDDER), A., i, 513.
- Diphenylthiomaleuric acid**, and its salts (DUNLAP), A., i, 697.
- Diphenylthiosemicarbazide**, the imidodiazolone and thiodiazolone from (MARCKWALD), A., i, 504.
- 4-bromo-**, the imidodiazolone and thiodiazolone from (MARCKWALD), A., i, 504.
- 3-bromo-** and **2:4:5-tribromo-** (MARCKWALD), A., i, 505.
- 2-chloro-** and **3-chloro-**, and the thiodiazolones from (MARCKWALD), A., i, 505.
- 4-chloro-** and **4:4-dichloro-** and the imidodiazolones and thiodiazolones from (MARCKWALD), A., i, 504.
- 3:3-dichloro-** (MARCKWALD), A., i, 505.
- 2-nitro-**, and **4-nitro-** (MARCKWALD), A., i, 504, 505.
- 3-nitro-**, and the thiodiazolone from (MARCKWALD), A., i, 505.
- Diphenyl-*o*-toluidine**, and nitro- (HAEUSERMANN and BAUER), A., i, 204.
- α -Diphenyl-*c-o*-tolylbiuret** (DIXON), T., 396; P., 1899, 63.
- Diphenyltolylmethane-*o*-carboxylic acid**. See Phenyltolyl-*o*-toluic acid.
- Diphenyltolylpyrrolone** (VON MILLER and PLÖCHL), A., i, 159.
- ϵ -Diphenyl- $\alpha-o$ -tolylthiobiuret** (DIXON), T., 395; P., 1899, 63.
- ϵ -Diphenyl- $\alpha-p$ -tolylthiobiuret** (DIXON), T., 396; P., 1899, 63.
- 3:5-Diphenyltriazole**, from action of heat on dibenzoylhydrazine (PELLIZARI), A., i, 858.
- 1:5-Diphenyltriazoline**, 3-imino-, and its diacetyl and dibenzoyl derivatives (CUNEO), A., i, 549.
- Diphenyltrimethylenediamine**, and salts (SCHOLTZ), A., i, 881.
- Diphthalidedimethyl ketone and ketoxime** (HAMBURGER), A., i, 142.
- Diphthalimidoacetone-ethylmercaptole** (POSNER), A., i, 605.
- Diphthalimidoepihydrin** (POSNER), A., i, 606.
- Diphthalimidosulphonol** (POSNER), A., i, 605.
- Diphthalyl, dithio-** (GABRIEL and LEUPOLD), A., i, 122.
- Diphthalyllic acid**, formation of (GABRIEL and LEUPOLD), A., i, 122.
- dithio-**, tetramethylic derivative of (GABRIEL and LEUPOLD), A., i, 122.
- Diphtheria**, causes of antagonism of toxins and antitoxins of (MARTIN and CHERRY), A., ii, 234.
- Diphtheria-toxin**, action of the pancreas on (CHARRIN and LEVADITI), A., ii, 441.
- influence of, on metabolism (NOËL-PATON, DUNLOP, and MACADAM), A., ii, 602.
- Dipiperidoquinonedicarboxylic acid**, ethylic salt (GUINCHARD), A., i, 700.
- Dipiperidylbutylic alcohol**, nitro-, formation of (HENRY), A., i, 729.
- Dipropanediolamine**, formation of (KNORR and KNORR), A., i, 411.
- Dipropenylic glycol** (*crotonaldehyde pinacone*), tetrabromo-, and its acetyl derivative (CHARON), A., i, 849.
- dichlorohydrin**, and its tetracetyl derivative (CHARON), A., i, 849.
- $\beta\beta$ -Dipropionoxydinaphthalene** (FOSSE), A., i, 817.
- Dipropionyl-di-*p*-tolyltrimethylenediamide**, dibromo- (BISCHOFF and TSCHUNKEW), A., i, 279.
- Dipropionyltartaric acid**, ethereal salts, density, specific rotation, and molecular volume of (FRANKLAND), T., 361.
- Diisopropoxysuccinic acid**, and its barium, calcium, magnesium, and isopropylic salts (PURDIE and PITKEATHLY), T., 156; P., 1899, 6.
- Dipropylamine**, from reduction of β -dipropylhydroxylamine, and its hydrochloride and platinochloride (DUNSTAN and GOULDING), T., 804.
- action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1010.
- action of nitrosyl chloride on (SOLONINA), A., i, 473.
- Dipropylamine**, cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
- Diisopropylamine**, from reduction of β -diisopropylhydroxylamine, and hydrochloride and platinochloride (DUNSTAN and GOULDING), T., 805.
- Diisopropylaniline**, action of methylic iodide on (WEDEKIND), A., i, 351.

- Dipropylarsinic acid** (*propylcacodylic acid*) (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Diisopropylbutenedicarboxylic acids**, stereoisomeric (BARBIER and GRIGNARD), A., i, 118.
- β -Dipropylhydroxylamine**, formation of, by action of hydrogen peroxide on dipropylamine (DUNSTAN and GOULDING), T., 1010.
and its acid oxalate, also its reduction (DUNSTAN and GOULDING), T., 803; P., 1899, 60.
- β -Diisopropylhydroxylamine**, and reduction (DUNSTAN and GOULDING), T., 804; P., 1899, 60.
- Diisopropyl phosphite** and its silver salt (MILOBENSKI), A., i, 659.
- Dipropyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
- Dipropyl-*p*-nitraniline** (NAGORNOFF), A., i, 425.
- Dipropylloxamide**, *dinitro*-, and action of ammonia on (UMBGROVE and FRANCHIMONT), A., i, 105.
- Diisopropylpiperazine** and salts (CONRAD and HOCK), A., i, 632.
- s*-Diisopropylsuccinic acid**, isomeric forms of, and the anhydrides and calcium salts; also the dissociation constants (BONE and SPRANKLING), P., 1899, 149.
- Dipropylthiocarbamide**, formation of (WALLACH), A., i, 659.
- Dipulvic acid**, probable identity of stictaurin with (ZOFF), A., i, 716.
- Di- β -pyridylcarbamide** (CURTIUS and MOHR), A., i, 73.
- Dipyridyl-2:2':6:6'-tetracarboxylic acid** and salts (HUTH), A., i, 934.
- Dipyridylthiocarbamide** (O. FISCHER, HOERGER, and JAEGER), A., i, 634.
- Disalicylphthalide** and methylic and ethylic salts (LIMPRICHT), A., i, 293.
- Disalicyl-*o*-toluic acid** (LIMPRICHT), A., i, 293.
- Disazo-dyes** of the benzene series (BÜLOW and WOLFS), A., i, 135.
- Dissociable system**, discussion of a (COLSON), A., ii, 205.
- Dissociated compounds**, dilution law for (BARNWATER), A., ii, 274.
- Dissociation** of a substance into two products, equilibrium in (BANCROFT), A., ii, 411.
of gases at constant pressure (WEGSCHEIDER), A., ii, 590.
- Dissociation** of ammonium double chlorides, entropy change in (MATIGNON), A., ii, 273.
of ammonium fluoromolybdate and fluosilicate (MIOLATI and ALVISI), A., ii, 350.
of chlorine, nitric peroxide, and acetic acid vapour (LEBUC), A., ii, 729.
of diammoniomercuric iodide (FRANÇOIS), A., ii, 657.
of mercuric oxide (PÉLABON), A., ii, 423.
of nitric peroxide (POCHETTINO), A., ii, 729.
of oleates (DENNHARDT), A., ii, 351.
of phosphorus *pentabromide*, in organic solvents (KASTLE and BEATTY), A., ii, 481.
of phosphorus *pentachloride* and of methylic ether hydrochloride (WEGSCHEIDER), A., ii, 590, 591.
of rubidium tartrate (RIMBACH), A., ii, 345.
of silver nitrate, in fused sodium or potassium nitrates (GORDON), A., ii, 347.
- Dissociation constants** of isomeric *s*-diisopropylsuccinic acids (BONE and SPRANKLING), P., 1899, 149.
of the methyl-substituted succinic acids (BONE and SPRANKLING), T., 862.
of β -isopropylglutaric acid (HOWLES and THORPE), P., 1899, 104.
- Dissociation pressures** of gaseous hydrates, molecular weights deduced from (ROSSET), A., ii, 548.
of ammoniacal cadmium chlorides (LANG and RIGOUT), T., 883; P., 1899, 182.
of silver ammoniochlorides, bromides, and iodides, and of silver methyl ammoniobromide and iodides (JARRY), A., ii, 738.
of silver suboxide (GUNTZ), A., ii, 418.
- Dissociative power** of solvents, cause of (BRÜHL), A., ii, 10.
- Distearyl-salicyl glyceride**, fate of, in the living body (HUMNICKI), A., ii, 781.
- Distillation**, fractional, forms of still-head for (YOUNG), T., 679; P., 1899, 147.
under reduced pressure, vacuum regulator for (AUGER), A., ii, 474; (HAUSSER), A., ii, 645.
- Dithiondisulphides**, electrolytic preparation of (SCHALL and KRASZLER), A., i, 414.

- Di-*p*-toluenesulphobistrimethylenediamide** (MARCKWALD and DROSTE-HUELSHOFF), A., i, 290.
- Di-*p*-toluenesulphotrimethylenediamide** (HOWARD and MARCKWALD), A., i, 750.
- Di-*p*-toluidino-oxalic acid**, methylic salt, and the action of ammonia on it; also its platinumchloride (ANSCHÜTZ and STIEPEL), A., i, 573.
- α - δ -Di-*o*-toluidinopentane**, and its picrate (SCHOLTZ and FRIEMEHLT), A., i, 541.
- o*-, *m*-, and *p*-Ditoluoylglyceric acids**, methylic and ethylic salts, specific rotations of, and in solution (FRANKLAND and ASTON), T., 493; P., 1899, 105.
- Ditoluoyltartaric acids**, *o*-, *m*-, and *p*-, methylic and ethylic salts, molecular volumes of (FRANKLAND), T., 349.
- 4:3'-Ditolyl**, **4:4'-Ditolyl** (WEILER), A., i, 490.
- p*-Ditolyl**, action of chromyl chloride on, chloro- and dichloro-derivatives (WEILER), A., i, 519.
- Ditolylacetic acid**, and its salts (FRITSCH and FELDMANN), A., i, 600.
- Di-*p*-tolylamide** (WHEELER and JOHNSON), A., i, 354.
- Di-*p*-tolylamidinoxalo-*p*-tolunide**, crystalline form of (ANSCHÜTZ and STIEPEL), A., i, 573.
- Ditolylanthrone** (GUYOT), A., i, 295.
- Ditolylcarbamide** (DAINS), A., i, 593.
- Ditolylcarbamides**, isomeric *d*initro-, amino-, and *d*iamino- (VITTENET), A., i, 810.
- Ditolyl-4:4'-dicarboxylic acid**, dimethylic salt (WEILER), A., i, 491.
- Di-*o*-tolylidihydrazonacetylacetone** (FAVREL), A., i, 438.
- Di-*o*-tolylidihydrazonocycanoacetic acid**, ethylic and methylic salts (FAVREL), A., i, 58.
- Di-*o*-tolylidihydrazonemalonic acid**, methylic and ethylic salts (FAVREL), A., i, 521.
- Di-*p*-tolylidimethylenediamine**, and a polymeride and its isomeride (BISCHOFF), A., i, 279.
- Di-*p*-tolylidisulphone** (KÖHLER and MACDONALD), A., i, 904.
- Ditolylene**, disulphide and disulphone (COHEN and SKIRROW), T., 890; P., 1899, 83.
- Di-*p*-tolylidenehydrazone**, and *d**m* nitro- (HANZLIK and BIANCHI), A., i, 597.
- Di-*p*-tolylmethenylamidine** (WHEELER and JOHNSON), A., i, 269.
- Ditolyl-3-methylantrone** (GUYOT), A., i, 295.
- Ditolylphthalide** (GUYOT), A., i, 293.
- Di-*o*-tolylthiofluorescein** (GATTERMANN, and BERENDES), A., i, 514.
- 2:2-, 2:4-, and 4:4'-Ditolylthiosemicarbazides** (MARCKWALD), A., i, 504, 505.
- Di-*o*-tolyltrimethylenediamine**, and its sulphate (SCHOLTZ), A., i, 881.
- Di-*p*-tolyltrimethylenediamine** (BISCHOFF and TSCHUNKEW), A., i, 279.
- Di-*p*-tolyltrimethylenediaminecarbonyl chloride** (SCHOLTZ), A., i, 881.
- Diisotropylcarbamide** (WILLSTÄTTER and MÜLLER), A., i, 178.
- Diuretin**, composition of (SZTANKAY), A., i, 240.
- Divaleric acid**. See Decoic acid.
- Diisovaleryl-di-*o*- and -*p*-tolylidiamide and -di- β -naphthylidiamide** *di- α -bromo-* (BISCHOFF and PÄPKE), A., i, 278, 279.
- Diisovalerylethylenediphenyldiamide, di- α -bromo-** (BISCHOFF and PÄPKE), A., i, 278.
- Divaleryl tartaric and Diisovaleryl tartaric acids**, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 362.
- Divicin**, formula, and oxidation of (RITTHAUSEN), A., i, 715.
- Divinyl**. See Butinene.
- Dixgenic acid** (KILIAN), A., i, 932.
- Dixylene**, disulphide (COHEN and SKIRROW), T., 870; P., 1899, 183.
- Dixylmethane, diamino-**, and its diacetate (FRIEDLÄNDER and BRAND), A., i, 351.
- Dixylthiocarbamide** (BUSCH), A., i, 496.
- n*-Dodecoic acid**, amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
- Dodecoic acid diisoomylacetic acid**, and amide (FOURNIER), A., i, 735.
- Dodecoic acid**. See also Lauric acid.
- Dolomite**, formation of, in the Alps (PHILIPPI), A., ii, 306.
- Dolomitic limestone** from Sweden (SJÖGREN), A., ii, 760.
- Domingite**, artificial (SOMMERLAD), A., ii, 217.
- Dotriacontane**, boiling point of, in a vacuum (KRAFFT), A., ii, 465.
- Drying oils**. See Oils.
- Drying oven**, electric (RICHARDS), A., ii, 592.
- Duboisia myoporoides***, the alkaloids of (MERCK), A., i, 91.
- Duboisine**, chemistry of (PINNEN), A., i, 178.

- Dufrenoy'site** from Switzerland (GUILLEMAIN), A., ii, 757.
 artificial (SOMMERLAD), A., ii, 218.
Dulcitol, action of hydrogen peroxide on, in presence, and in absence of iron (FENTON and JACKSON), T., 9; P., 1898, 240.
 condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
Dung. See Agricultural chemistry.
Dunite from Massachusetts (MARTIN), A., ii, 112.
Durene and *iso*-Durene, formation of (KLAGES and LICKROTH), A., i, 598.
Durene-carboxylic acid, synthesis of (GATTERMANN and PRENTICE), A., i, 510.
iso-Durene-6-carboxylic acid, and amide (GATTERMANN and PRENTICE), A., i, 509.
Dust, fall of, in Victoria (STEEL), A., ii, 674.
Dyer's broom, colouring matters and dyeing properties of (PERKIN and NEWBURY), T., 830; P., 1899, 179.
Dynamite, ammonium perchlorate in (ALVISI), A., ii, 748.
 analysis of (SMITH), A., ii, 528.

E.

- Earth-nut**. See *Arachis*.
Earth-nut oil, estimation of arachidic and lignoceric acids in (ARCHBUTT), A., ii, 260.
 estimation of, in presence of other oils (JEAN), A., ii, 260.
Ecgonine, constitution of (WILLSTÄTTER and MÜLLER), A., i, 178.
 methiodide and its ethylic methylbetaine derivatives (WILLSTÄTTER), A., i, 651.
 methochloride, ethylic, aurichloride of (WILLSTÄTTER), A., i, 651.
Echinase, digestive action of, on snake-venom (PHISALIX), A., ii, 782.
Edestin, composition and solubility of, and its *mono*- and *di*-hydrochlorides (OSBORNE), A., i, 836.
Eels, presence of a toxalbumin in the flesh of (BENECH), A., ii, 439.
 serum of, immunity of some animals to the action of (CAMUS and GLEY), A., ii, 783.
Elaidic acid, molecular weight of, in stearic acid (BRUNI and GORNI), A., ii, 731.
 boiling point of, in a vacuum (KRAFFT), A., ii, 464.
Elaidic acid and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471.
 and oleic acid, isomerism of (ALBITZKY), A., i, 862.
 separation of, from other unsaturated acids (FARNSTEINER), A., ii, 705.
Elaidic anhydride and amide (EMELJANOFF and ALBITZKY), A., i, 864.
Elaidodistearin and its chloriodo-compound (HENRIQUES and KÜNNE), A., i, 331.
Elderberry juice, detection of, in ergot extract (CEPPELINI), A., ii, 135.
ELECTROCHEMISTRY :—
Anode, iron, solution of, in electrolysis of sodium acetate and acetic acid (ARTH), A., ii, 723.
Cathodes, metallic, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.
Cell, osmotic theory of (NERNST), A., ii, 345.
 concentration, E.M.F. of (BANCROFT; TREVOR), A., ii, 395.
 Borchers', continuous current from (HOEPER), A., ii, 541.
 Bunsen's, modified; use of potassium ferricyanide in (PETERSEN), A., ii, 346.
 Clark or Daniell, application of phase rule to (BANCROFT), A., ii, 394.
 Daniell's, with magnesium chloride in place of zinc sulphate (PETERSEN), A., ii, 346.
 oxygen-hydrogen gas, formation of water in (GLASER), A., ii, 78.
 with carbon and lead peroxide in sodium chloride (TOMMASI), A., ii, 199.
 Clark and cadmium, E.M.F. of (KAHLE), A., ii, 348.
 Clark's or Weston's, internal resistance of (COHEN), A., ii, 462.
Conductivity, apparatus for (GOLD-SCHMIDT and REYCHLER), A., ii, 463.
 calculated from ionic velocities (KOHLRAUSCH), A., ii, 201.
 influence of dilution on (SCHÜKAREFF), A., ii, 722.
 osmotic theory of (KAHLENBERG), A., ii, 624.
 of flames containing vaporised salts (SMITHELLS, DAWSON, and WILSON), A., ii, 722.
 of gases, induced by Röntgen rays (TOWNSEND), A., ii, 730.
 of glass (GRAY and DOBBIE), A., ii, 541.

ELECTROCHEMISTRY :—

- Conductivity** of complex fluorides and oxyfluorides (MIOLATI and ALVISI), A., ii, 350.
- of fused zinc chloride (CZEPINSKI), A., ii, 268; (SCHULTZE), A., ii, 623.
- of solutions, effect of pressure on (BOGOJAWLENSKY and TAMMANN), A., ii, 137.
- of mixed solutions (HOFFMEISTER), A., ii, 6.
- of solutions of two or more electrolytes (BARMWATER), A., ii, 396.
- of solutions containing two electrolytes with a common ion, and of double salt solutions, calculability of (MACGREGOR and ARCHIBALD), A., ii, 201.
- of electrolytes and dilution (MULLER), A., ii, 396.
- of electrolytes in organic solvents (DUTOIT and FRIDERICH), A., ii, 350.
- of ammonium and potassium salts, and of oleic acid and salts (DENNHARDT), A., ii, 351.
- of solutions of boric acid (BLYTH), T., 724; P., 1899, 51.
- of solutions of chlorine in water (JAKOWKIN), A., ii, 736.
- of aqueous solutions of double chlorides (JONES and OTA), A., ii, 587.
- of isocyaniform and its sodium salt (HANTZSCH and OSSWALD), A., i, 405.
- molecular, of diazonium hydroxide and salts, and diazotates (DAVIDSON and HANTZSCH), A., ii, 6.
- of diphenyliodonium hydroxide, rubidium iodochloride, and iodine chloride (SULLIVAN), A., ii, 398.
- of solutions of ferric chloride and auric chloride in alcoholic ether, temperature coefficient of (CATANEO), A., ii, 355.
- of δ -ketonic acids, and of hydroresorcinol derivatives (VON SCHILLING and VORLÄNDER), A., i, 878.
- of isonitracetophenone, isodinitromethane, and bromodinitromethane (HANTZSCH and VEIT), A., i, 403.
- of salts of nitroform and dinitroethane alcoholate (HANTZSCH and RINCKENBERGER), A., i, 404.
- of *l*-phenylmethoxyacetic acid (MCKENZIE), T., 767.

ELECTROCHEMISTRY :—

- Conductivity** of solutions of potassium chloride and iodide, and of sodium bromide and iodide, in nitrobenzene, benzonitrile, or furfuran (EULER), A., ii, 462.
- of mixed solutions of potassium and ammonium chlorides, and of double chlorides and bromides (JONES and KNIGHT), A., ii, 628.
- of salts of complex oxalic acids (ROSENHEIM and KOPPEL), A., i, 741.
- of soap solutions (KAHLENBERG and SCHREINER), A., ii, 203.
- of solutions of uranyl salts (DITTRICH), A., ii, 629.
- of animal fluids (RÖTH), A., ii, 311.
- of muscle extracts (STEWART), A., ii, 680.
- Current density**, electrodes for uniform distribution of (RIBAN), A., ii, 543.
- Dielectric constant** of alcohols, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
- Dilution law** and ionic velocities in electrolytic solutions (HOFFMEISTER; JAHN), A., ii, 6.
- Electric discharge**, glow, action of, on mixtures of gases (MIXTER), A., ii, 267.
- silent, chemical action of, on carbon compounds (BERTHELOT), A., i, 657.
- effect of, on mixtures of carbon disulphide with hydrogen, nitrogen, argon, or carbon monoxide (BERTHELOT), A., ii, 648.
- action of, on mercury phenyl and mercury methyl in presence of argon and nitrogen (BERTHELOT), A., i, 871.
- in organic compounds, spectra produced by (WIEDEMANN and SCHMIDT), A., ii, 5.
- Electric lamp**, incandescent, as a source of heat (HOPKINS), A., ii, 645.
- Electrical absorption** and dispersion of some ethereal salts, alcohols, and glass (LÖWE), A., ii, 201.
- Electrical oscillations**, absorption of, by organic compounds (KAUFFMANN), A., ii, 464.
- Electrical resistance**, internal, of Clark's or Weston's cell (COHEN), A., ii, 462.
- of glass (GRAY and DOBBIE), A., ii, 541.

ELECTROCHEMISTRY :—

- Electro-affinity** of the elements, and the solubility and dissociation of salts (ABEGG and BODLÄNDER), A., ii, 542.
- Electrochemical equivalent** of silver (KAHLE), A., ii, 348.
- Electrodes** for obtaining uniform distribution of current density (RIBAN), A., ii, 544.
- reversible (LUTHER), A., ii, 5.
- of aluminium, in solutions of alums (WILSON), A., ii, 540.
- mercury dropping, change of concentration of mercurous nitrate solution in (PALMAER), A., ii, 347.
- of platinum gauze, electrolytic precipitation of metals on (WINKLER), A., ii, 723.
- Electro-deposition** of vanadium and palladium (COWPER-COLES), A., ii, 755.
- Electrolysis** of aqueous solutions, E.M.F. required for (GLASER), A., ii, 79.
- of salt solutions, with copper ferrocyanide membrane (SCHREBER), A., ii, 273.
- of alkali chlorides (WINTLER), A., ii, 212.
- of ammonium thiosulphate (PIERSON), A., ii, 587.
- of solutions of calcium chloride (OETTEL), A., ii, 219; (FOERSTER and YORRE), A., ii, 280.
- of trichlorobutyric acid (TROEGER and EWERS), A., i, 667.
- of copper and silver nitrates, potassium chlorate, or hydrogen peroxide, application of principle of maximum work to (TOMMASI), A., ii, 413.
- of copper and zinc cyanides (BAKER), A., ii, 749.
- of solutions of gold or platinum chlorides (HITTORF and SALKOWSKI), A., ii, 398.
- of dilute nitric, with cathodes of various metals (FREER and HIGLEY), A., ii, 480.
- of solutions of platinic or stannic chlorides (DITTENBERGER and DIETZ), A., ii, 629.
- of solution of potassium cuprotartrate (MASSON and STEELE), T., 725; P., 1899, 120.
- of sodium salts of halogen-substituted fatty acids (TROEGER and EWERS), A., i, 12.
- of fused zinc chloride (SCHULTZE), A., ii, 657.

ELECTROCHEMISTRY :—

- Electrolysis** of solutions of zinc chloride (FOERSTER and GÜNTHER), A., ii, 220.
- Electrolytes**, conductivity and dilution of (MÜLLER), A., ii, 396.
- conductivity of, in organic solvents (DUTOIT and FRIDERICH), A., ii, 350.
- fused electrolysis of (CZEPINSKI), A., ii, 267.
- heat of dilution and dissociation of (NOYES), A., ii, 401.
- of two ions, influence of, on solubility of one of three ions (NOYES and CHAPIN), A., ii, 405.
- dissolution of platinum or gold in (MARGUELES), A., ii, 200.
- strong, dilution and dissociation of (EULER), A., ii, 724.
- dissociated, diffusion of (BOSE), A., ii, 729.
- dissociation of, in aqueous alcohol (COHEN), A., ii, 275.
- Electrolytic dissociation** and electro-affinity (ABEGG and BODLÄNDER), A., ii, 543.
- effects of pressure on (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
- and dilution of strong electrolytes (EULER), A., ii, 724.
- of strong acids and bases, and heat of neutralisation (VAUBEL), A., ii, 728.
- of metallic salts of organic acids (CALAME), A., ii, 145.
- of acetic acid, influence of dissolved acetates on (BAMBERGER), A., ii, 548.
- of chlorine in water, and influence of chlorides on (JAKOWKIN), A., ii, 736.
- of isocyaniform (HANTZSCH and OSSWALD), A., i, 405.
- of *l*-phenylmethoxyacetic acid, and of *d*-mandelic acid (MCKENZIE), T., 768.
- of nitroform and *d*-nitroethane alcoholate (HANTZSCH and RINCKENBERGER), A., i, 404.
- constants of β -hydroxy- $\alpha\alpha_1$ -dimethylglutaric acid and β -acetoxy- $\alpha\alpha_1$ -dimethylglutaric acid (REFORMATSKY), A., i, 481.
- constants of β -hydroxytetramethylglutaric and β -acetoxytetramethylglutaric acids (MICHAILENKO), A., i, 482.
- constants of isonitracetophenone and isodinitromethane (HANTZSCH and VEIT), A., i, 403.

ELECTROCHEMISTRY :—

- Electrolytic reduction** of aliphatic nitro-derivatives (PIERON), A., i, 844.
- Electrolytic resistance**, a method of measuring (MCLHINEY), A., ii, 6.
- Electromotive force**, increase of, accompanying dilution of electrolytes (BOSE), A., ii, 349.
- between amalgams (CADDY; BANCROFT), A., ii, 394, 395.
- between ammonium amalgam and copper in various salt solutions (POCKLINGTON), A., ii, 200.
- osmotic theory of (KAHLENBERG), A., ii, 624.
- of polarisation, and temperature coefficient of fused electrolytes (CZEPINSKI), A., ii, 268.
- of cells with mercury electrodes in solutions of mercurous nitrate (OGG), A., ii, 14.
- required to decompose electrolytes (BOSE), A., ii, 348.
- required to decompose solutions of alkali chlorides (WOHLWILL), A., ii, 213.
- variation of (BANCROFT), A., ii, 394.
- of Bunsen cell in which potassium ferricyanide or ferrocyanide replaces nitric acid (PETERSEN), A., ii, 346.
- of the cells $C | Zn | ZnCl_2 | Cl | C$, $Zn | ZnCl_2 | PbCl_2 | Pb$ and $Zn | ZnBr_2 | PbBr_2 | Pb$ (CZEPINSKI), A., ii, 268, 269.
- of Clark and cadmium cells (KAHLE), A., ii, 348.
- of concentration cells (BANCROFT; TREVOR), A., ii, 395.
- of copper | zinc battery with organic solvents, and of potassium chloride concentration cells (SALVADORI), A., ii, 721.
- of the cells $Pb | PbCl_2, Cl$, $Pb | PbBr_2 | Br, Ag | AgCl | Cl$, $Cd | CdCl_2 | Cl, Cd | CdBr_2 | Br$ (WEBER), A., ii, 725.
- produced by action of light on cell $Pt | AgI | Pt$ (SCHOLL), A., ii, 621.
- of cells with silver electrodes in fused sodium and potassium nitrates containing silver nitrate (GORDON), A., ii, 347.
- of the cells $Zn | NaCl | FeCl_3 | C$, $Zn | FeCl_3 | C$, and $Fe | FeCl_3 | C$ (PETERSEN), A., ii, 346.
- of cells of zinc and cadmium amalgams; contact, between cadmium and cadmium amalgam (RICHARDS and LEWIS), A., ii, 267.

ELECTROCHEMISTRY :—

- Electromotive force** of cells containing zinc, lead, copper or mercury and salts (MCINTOSH), A., ii, 77.
- Electrostatic charge**, dissipation of, under the influence of light (KNOBLAUCH), A., ii, 622.
- Ions**, separation of, E.M.F. required for (BOSE), A., ii, 348.
- gaseous, diffusion of, and charges on, produced by Röntgen rays (TOWNSEND), A., ii, 730.
- complex electro-affinity and the tendency to form (ABEGG and BOPLÄNDER), A., ii, 543.
- chlorine, migration number for, and concentration (MASSON), A., ii, 626.
- diazonium, pyridinemethylum, and tetramethylammonium, velocities of (DAVIDSON and HANTZSCH), A., ii, 6, 7.
- hydrogen or hydroxyl, E.M.F. required for continuous separation of (GLASER), A., ii, 79.
- sulphuric acid, migration number of (STARCK), A., ii, 625.
- uranyl, velocity of (DITTRICH), A., 629.
- toxic influence of, on fungi (CLARK), A., ii, 627.
- Ionic Velocities**, measurement of (MASSON), A., ii, 625.
- and the conductivity and concentration of solutions (KOHLEAUSCH), A., ii, 201.
- in flames containing vaporised salts (WILSON), A., ii, 723.
- Ion concentration**, in fused lead or zinc chlorides or bromides (LORENZ), A., ii, 269.
- Ionisation**, relation of toxicity of metallic salts to (MAILLARD), A., ii, 570.
- isomerism (HANTZSCH), A., i, 400.
- Ion-wind pressure**, on semi-permeable membranes (SCHREBER), A., ii, 273.
- Kations**, velocity of, influence of a dividing membrane on (BEIN), A., ii, 399.
- Polarisation**, E.M.F. of, in solutions of sodium, lithium, or ammonium sulphates (JAHN), A., ii, 542.
- in cells containing copper sulphate or silver nitrate, determination of (HEIM), A., ii, 77.
- Potential**, electrolytic (SCHÜKAREFF), A., ii, 722.
- single differences of (CARVETH), A., ii, 137.

ELECTROCHEMISTRY :—

- Potential difference** between amalgams of different concentrations, and between amalgams and solutions (SCHOELLER), A., ii, 346.
- between a metal and a solution ; between mercury electrodes in mercurous sulphate, and silver electrodes in dilute hydrochloric acid (NERNST), A., ii, 345.
- between metals and non-aqueous solutions of their salts (KAHLENBERG), A., ii, 624.
- of lead electrodes in solution of a calcium salt (LUTHER), A., ii, 5.
- between platinum charged with carbonic oxide, or oxygen, and normal hydrochloric acid ; and between platinum and cuprous chloride, with and without carbonic oxide (HOEPER), A., ii, 541.
- between benzene iododichloride and chlorine (SULLIVAN), A., ii, 398.
- Specific inductive capacity** of azoxy-anisole (ABEGG and SEITZ), A., ii, 623.
- of glass (GRAY and DOBBIE), A., ii, 541.
- Transference number** for hydrogen (McINTOSH), A., ii, 137 ; (BANCROFT), A., ii, 398.
- Voltameter**, silver, deposition of silver in (KAHLE), A., ii, 347.
- Elements**, scheme of the (CROOKES), A., ii, 552.
- magnetic properties of the (MEYER), A., ii, 587.
- atomic weights of the, table of (LANDOLT, OSTWALD, and SEUBERT), A., ii, 86.
- Embolite** from Sardinia (TRAVERSO), A., ii, 759.
- Emery** from Virginia (MILLER), A., ii, 759.
- Emetine**, octiodide of (GORDIN and PRESCOTT), A., i, 651.
- Emplectite** from Saxony (GUILLEMAIN), A., ii, 757.
- Enargite** from Montana (HILLEBRAND), A., ii, 302.
- from Peru and Colorado (GUILLEMAIN), A., ii, 757.
- Endocarpus miniatum*, constituents of (HESSE), A., i, 382.
- Energy**, total and free, in electrolysis of fused electrolytes (CZEPINSKI), A., ii, 267.
- Enstatite** from North Carolina (LEWIS), A., ii, 561.
- from the Transvaal (HENDERSON), A., ii, 111.
- artificial (MOROZEWICZ), A., ii, 763.

"Enteque," composition of the pulmonary ossifications in (PORCHER), A., ii, 568.

Entropy. See Thermochemistry.

Enzyme in animal tissues which reduces nitrates (ABELOUS and GERARD), A., ii, 680.

oxidising, presence of, in beer-yeast (EFFRONT), A., ii, 118.

Enzymes, proteolytic, presence of, in extracts of *Sarcina rosea*, and *Bacillus typhosus* and *tuberculosis* (GERET and HAHN), A., i, 95.

relation of, to animal oxidation (SACHAROFF), A., ii, 787.

secretion of (DIENERT), A., ii, 683.

Enzymes. See also :—

Amylase.

Beet diastase.

Beet invertase.

Cynarasin.

Diastase.

Digitalis ferment.

Echidnase.

Invertase.

Invertin.

Laccase.

Lactase.

α -, β -, and γ -Oxydase.

Pectinase.

Pepsin.

Takadiastase.

Trehalase.

Trypsin.

Tyrosinase.

Vesiculase.

Yeast, enzymes of.

Eosin, iodo-, use of, in alkalimetry (GLASER), A., ii, 573.

Epiboulangerite from Silesia (GUILLEMAIN), A., ii, 757.

Epichlorhydrin, action of, on ethylic sodiomalonate (TRAUBE and LEHMANN), A., i, 417.

action of hydrocyanic acid on (LESPICHAU), A., i, 243.

action of potash on, in presence of alcohols (ZUNINO), A., i, 410.

and epibromhydrin, action of potassium thiocyanate on (ENGLE), A., i, 3.

Epidote from Scotland (HEDDLE), A., ii, 497.

Epiguanine, constitution of ; identity of, with Fischer's 7-methylguanine, and conversion into heteroxanthine (KRÜGER and SALOMON), A., i, 306.

Epithyridimethylsulphine iodide, from action of methylic iodide on epithiocyanhydrin (ENGLE), A., i, 4.

Epinephrine, preparation of, and salts (ABEL), A., i, 395.

Epithiocyanhydrin, from action of potassium thiocyanate on epichlorhydrin and epibromhydrin, and action of ethylic iodide on (ENGLE), A., i, 3.

Epsomite from Canada (HOFFMANN), A., ii, 110.

Equation, van der Waals', modification of (BOLTZMANN and MACHE), A., ii, 635.

EQUILIBRIUM :—

Phase rule, mathematical demonstration of (SAUREL), A., ii, 406.

Equilibrium of stereoisomerides (BANCROFT), A., ii, 145, 411.

of isomorphous mixtures (BRUNI), A., ii, 407.

conditions of, in heterogeneous systems (LE CHATELIER), A., ii, 740.

between a dissociating substance and two products of dissociation (BANCROFT), A., ii, 411.

between ammonium thiocyanate and thiocarbamide (WADDELL), A., ii, 410.

between α - and β -benzaloxime (CAMERON), A., ii, 411.

between d - and l -pinene and solutions in methylic or ethylic alcohols (KIPPING and POPE), T., 1123 ; P., 1899, 200.

between sodium sulphate, potassium chloride, and sodium potassium sulphate (MEYEROFFER and SAUNDERS), A., ii, 410.

between water, alcohol, and potassium nitrate; temperatures at which two liquid phases appear (DODGE and GRATTON), A., ii, 408.

in solutions of chlorine in water (JAKOWKIN), A., ii, 736.

in the systems, ammonium sulphate, or sodium sulphate, ethylic alcohol, water; potassium carbonate, methylic or ethylic alcohol, water (DE BRUYN), A., ii, 591.

in the systems, benzene, naphthalene, diphenylamine; ethylenic bromide, picric acid, β -naphthol; benzene, naphthalene, β -naphthol; and benzene, phenanthrene, carbazole (BRUNI), A., ii, 406.

in the systems, hydrogen, oxygen, water; and oxygen, carbon monoxide and dioxide (HÉLIER), A., ii, 85.

in the system, mercuric oxide, mercury, oxygen (PÉLABON), A., ii, 423.

EQUILIBRIUM :—

Equilibrium in the systems, potassium chloride, water, acetone; sodium chloride, water, succinonitrile; potassium carbonate, water, alcohol; and naphthalene, water, acetone (SNELL), A., ii, 407, 408.

in systems containing water, ammonium chloride and ferric chloride (MOHR), A., ii, 15.

in the system, water, phenol, aniline (SCHREINEMAKERS), A., ii, 739.

Velocity of solidification of supercooled liquids and solutions (WILDERMANN), P., 1899, 175.

chemical. See Affinity, chemical.

Erbium in monazite sands (SCHÜTZENBERGER and BOUDOUARD), A., ii, 367.

bands, in spectrum of didymium from monazite sands (URBAIN), A., ii, 425.

separation of holmium from, by the ethylic sulphate method (URBAIN), A., ii, 28.

Ergot of Rye, evaluation of (KELLER; BECKURTS and GROTHE), A., ii, 389. extract, detection of elderberry juice in (CEPPELLINI), A., ii, 185.

Eruhescite from the Caucasus (JERMÉEVEFF), A., ii, 108.

Eruic acid, isomerism of, with brassic acid (ALBITZKY), A., i, 862.

action of acetic anhydride on; also anhydride (ALBITZKY), A., i, 862.

and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471.

sodium or potassium salts, boiling point of solutions of (KRAFFT), A., ii, 471.

Erybothrya Japonica embryo, presence of hydrocyanic acid in (HÉBERT), A., ii, 378.

Erythrite from Sicily (LA VALLE), A., ii, 495.

Erythritol, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.

condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.

action of hydrogen peroxide on, in presence and in absence of iron (FENTON and JACKSON), T., 7 ; P., 1898, 240.

oxidation of, by atmospheric oxygen in sunlight in presence of iron (FENTON and JACKSON), T., 10 ; P., 1898, 240.

Erythrolaccin (TSCHIRCH and FARNER), A., i, 447.

Essonite. See Hessonite.

- Estragole** (KLAGES), A., i, 586.
from oil of basil (DUPONT and GUERLAIN), A., i, 441.
- Erythrene tetrabromide**. See Butane, tetrabromo-.
- Erythro-salts**, formula of (GUINCHARD), A., i, 781.
- Ethacetic acid**, formation of (FITTIG and GLASER), A., i, 334.
- Ethane**, ratio of specific heats for (DANIEL and PIERRON), A., ii, 725.
boiling point, and melting point of (LADENBURG and KRÜGEL), A., ii, 545.
critical temperature of mixtures of, with alcohols (KUENEN and ROBSON), A., ii, 356.
solubility of, in amyl alcohol (FRIEDEL and GORGEU), A., i, 182.
absorption of, by fuming sulphuric acid (WORSTALL), A., ii, 527.
- Ethane, *s*-tetrabromo- (acetylenic tetrabromide)** (MOUNEYRAT), A., i, 1.
and its reduction (ELBS and NEWMANN), A., i, 98.
action of chlorine on, in presence of aluminium chloride (MOUNEYRAT), A., i, 241.
action of, on ethylic malonate, in presence of sodium ethoxide (CROSSLEY), P., 1898, 248.
as-tetrabromo- (SWARTS), A., i, 734.
pentabromo-, and the action of chlorine and of antimony pentachloride on (ELBS and NEWMANN), A., i, 98.
hexabromo-, from acetylene tetrabromide (MOUNEYRAT), A., i, 1; (ELBS and NEWMANN), A., i, 98.
bromonitronitroso- and *bromodinitro*- (GRAUL and HANTZSCH), A., i, 188.
tetrachloro- (*acetylene tetrachloride*), action of aluminium chloride on (MOUNEYRAT), A., i, 470.
pentachloro-, action of chlorine on, in presence of aluminium chloride; also action of aluminium chloride on (MOUNEYRAT), A., i, 241.
hexachloro- (MOUNEYRAT), A., i, 241, 247; (ELBS and NEWMANN), A., i, 98.
chloropentabromo- (ELBS and NEWMANN), A., i, 98.
 $\alpha\beta$ -dichloro- $\alpha\alpha\beta$ -tribromo- and *$\alpha\beta$ -dichloro- $\alpha\alpha\beta\beta$ -tetrabromo-* (SWARTS), A., i, 725.
tricyano- (HANTZSCH and OSSWALD), A., i, 405.
fluoropentabromo- (SWARTS), A., i, 734.
nitro-, action of zinc ethyl on (LACHMANN), A., i, 326, 588.
electrolytic reduction of (PIERRON), A., i, 844.
- Ethane, *d*initro-, and its potassium derivative** (FILETI and PONZIO), A., i, 111.
potassium derivative and alcoholate of (HANTZSCH and RINCKENBERGER), A., i, 404.
trinitro-, from the action of methylic iodide on the silver salt of nitroform (HANTZSCH and RINCKENBERGER), A., i, 404.
isonitro- and *isodinitro*- (HANTZSCH and VEIT), A., i, 402, 403.
dithiocyano- (*ethylenic dithiocyanate*), action of, on ethylic cupracetoacetate (KOHLEK), A., i, 737.
- Ethanecatechol**. See Catechol ethylenic ether.
- Ethanedicarboxylic acids**. See Succinic and *iso*-Succinic acids.
- $\alpha\beta$ -Ethanedisulphonic chloride**, action of water on (KOHLEK), A., i, 19.
- Ethaneprotocatechuic aldehyde** and oxime and phenylhydrazone (MOUREU), i, 493.
- Ethanesulphonic acid**, β -chloro- and β -bromo- (KOHLEK), A., i, 19, 20.
 $\alpha\beta$ -*dibromo*- and $\beta\alpha$ -*chlorobromo*- (KOHLEK), A., i, 488, 489.
- Ethanetetracarboxylic acid** (*acetylene-tetracarboxylic acid*), ethylic salt, from action of ethylic sodiomalonate on ethylic *dibromomaleate* (RUHEMANN and CUNNINGTON), T., 963; P., 1899, 186.
from action of acetylene tetrabromide on ethylic malonate in presence of sodium ethoxide (CROSSLEY), P., 1898, 248.
formation of, from action of ethylic sodiomalonate on *dibromotrimethylethylene* (IPATIEFF), A., i, 481.
- Ethebenine** (*thebenine ethylic ether*) and *ethebenol* (FREUND), A., i, 308.
- Ethenyltriaminonaphthalene**, acetyl and benzoyl derivatives (MELDOLA and PHILLIPS), T., 1011; P., 1899, 187.
- Ethenyl- β -*o*-aminophenylbenzimidazole**, *Ethenyl- β -*o*-aminophenyl-*m*(*p*)-tolimidazole*, *Ethenyl- β -*o*-amino-*p*-tolylbenzimidazole*, and *Ethenyl- β -*o*-amino-*p*-tolyl-*m*(*p*)-tolimidazole* (VON NIEMENTOWSKI), A., i, 646, 647.
- Ethenylnaphthylenediamine**, iodo- (MELDOLA and PHILLIPS), T., 1016; P., 1899, 187.
- Ether**. See Ethylic ether.
- Ethers**, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
- Ethers**. See also :—
Acetal.

Ethers. See:—

Acetimidioethylic ether.
 Acetamidophenyl propylic ether.
iso-Amylic *l*-amylic ether.
 Amylic ethylic ether.
 Anhydroidoneresorcinol ether.
 Benzoylphloroglucinol methylic ether (cotoin).
 Benzyllic amylic, ethylic, methylic, phenylic, and propylic ethers.
 Butylic amylic ether.
 α -Camphylic phenylic ether.
 Catechol acetylenic, ethylenic and methylacetylenic ethers.
 Crotonylic ether.
 Diacetoxymethylic ether.
 Diacetylene glycol, dimethylic ether of.
 Dibutylresorcinol dibutyllic ether.
 Dicatechol acetylenic ether.
 Diethoxybenzene.
 Diguaiacylic ethylenic ether.
p-Dihydroxydimesitylic ether, diacetate.
 Dinaphthyllic benzylidenic, ethylenic, and diisopropylic ethers.
 Diphenoxyhexane.
 Diphenoxypentane.
 Diphenoxypropane.
 2-Ethoxybenzylideneresacetophenone, ethylic ether.
 Ethoxymethylethanecatechol.
 Ethylic allylic ether.
 Ethylic amylic ether.
 Ethylic butylic ether.
 Ethylic crotonylic ether.
 Ethylic β -diethylallylic ether.
 Ethylic ether.
 Ethylic hexylenic ether.
 Ethylic β -methylallylic ether.
 Glycerol diallylic, diisamylic, diethylic, dimethylic, and dipropylic ethers.
 Glycineaminoether.
 Hydroxybenzyllic ethylic and methylic ethers.
 Hydroxy- ψ -cumylic ether.
 Hydroxymesitylic ethylic ether.
 Hydroxyphenoxymethylacetal.
p-Hydroxy-*o*-xylylic methylic ether.
 Indoneresorcinol ether.
 Methylenediguaiacol.
 Methylic allylic ether.
 Methylic amylic ether.
 Methylic crotonylic ether.
 Methylic ether.
 Methylic ethylic ether.
 Methylic propargylic ether.
 Methylic propylic ether.
 Methylpyrogallol dimethylic ether.
 Morphenol methylic ether.
 Naphthyllic isobutylic and methylic ethers.

Ethers. See:—

Pentamethenylic ethylic ether.
 Pentamethylphloroglucinol monomethylic ether.
 Peucedanin (*oreoselone methylic ether*).
 Phenoxybutylene.
 Phenoxyhexylene.
 Phenoxypropylene.
 Phenylthiodiazolonethiol amino-phenylic and -naphthyllic ethers.
 Phenylguaiacol.
 Phenylic allylic ether.
 Phenylic benzyllic ether.
 Phenylic guaiacylic ethylenic ether.
 Phloracetophenone ethylic and methylic ethers.
 Propylic amylic ether.
p-Propylphenylic methylic ether.
 Propyltrihydroxyphenylic trimethylic ether.
 Pyrogallol dimethylic ether.
 Resorcinol monethylic ether.
 Tetramethylphloroglucinol monomethylic ether.
o-Tolyllic methylic ether.
Etherification constants of substituted acetic acids (SUDBOROUGH and LLOYD), T., 467; P., 1899, 2.
 of phosphoric acid by the aid of methylic alcohol (BELUGOU), A., i, 659.
Etherion (BRUSH; CROOKES), A., ii, 287.
Ethoxyacetic chloride, *dichloro*-, formation and decomposition of (HENRY), A., i, 660.
Ethoxy-*o*-aminophenimesatin (MARCHELEWSKI and RADCLIFFE), A., i, 720.
o-**Ethoxybenzamide**, hydrolysis of (REID), A., i, 508.
Ethoxybenzene-*p*-sulphonic acid, action of bromine on (ARMSTRONG), P., 1899, 177.
2-Ethoxybenzimidazolone (COHN), A., i, 944.
o-**Ethoxybenzoic acid**, 5-chloro-, and ethylic salt (MAZZARA), A., i, 700.
o-**Ethoxybenzonitrile** (RINGER), A., i, 894.
p-**Ethoxybenzonitrile** (REINDERS and RINGER), A., i, 893.
p-**Ethoxybenzo-*p*-phenetide** (BAMBERGER), A., i, 696.
o-**Ethoxy-2-benzylideneacetyl-1-naphthol**, and its acetyl derivative and dibromide (ALPERIN and VON KOSTANECKI), A., i, 524.
4-Ethoxybenzylidene-2-hydroxyacetophenone, and acetyl derivative (HERSTEIN and VON KOSTANECKI), A., i, 370.

- 2-Ethoxybenzylideneresacetophenone**, ethylic ether, and acetyl derivatives of (VON KOSTANECKI and VON SALIS), A., i, 524.
- Ethoxybromo- α -naphthaquinone** (LIEBERMANN), A., i, 373.
- 3-Ethoxy-2-isobutrylbenzimidazole** (COHN), A., i, 944.
- Ethoxycarbonyldiurethane** (DAINS), A., i, 594.
- m-Ethoxycarbonylphenol**, α -o-amino-, and β -o-amino- (KIETAIBL), A., i, 343.
- 3-Ethoxy-1':2'-dimethylbenzimidazole** (COHN), A., i, 944.
- 5-Ethoxydiphenyl** (*ethoxydiphenylene*), 2:4-diamino-, hydrochloride, dianisylidene, diacetyl, and dibenzoyl derivatives (JACOBSON and TIGGES), A., i, 275.
- Ethoxydiphenylanthrone** (TÉTRY), A., i, 818.
- Ethoxydiphenylcarboxylic acid**. See Phenylethylsalicylic acid.
- Ethoxyethylene**, trichloro-, oxidation of (HENRY), A., i, 660.
- 2-Ethoxyflavanone**, and **2-Ethoxyflavone** (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 371.
- Ethoxyguaiaacol**, bromo-, and bromotri-nitro- (BOSCOGRANDE), A., i, 427.
- 2-Ethoxyhexahydro-o-toluic acid** (*ethoxymethylcyclohexanecarboxylic acid*) (SERNOFF), A., i, 584.
- 4-Ethoxy-2-hydroxyphenyl-p-methoxystyrylketone**. See Anisylidene-4-ethoxy-2-hydroxyacetophenone.
- Ethoxyindophenazine** (MARCHLEWSKI and RADCLIFFE), A., i, 719.
- 3-Ethoxy-4'-methoxyflavone** (VON KOSTANECKI and OSIUS), A., i, 370.
- 3-Ethoxy-2'-methylbenzimidazole** (COHN), A., i, 944.
- p-Ethoxy-o- and m-methylbenzoic acids** (BAMBERGER), A., i, 695.
- Ethoxymethylenecyanacetic acid**, amylic, ethylic, and methylic salts (BOLLE-MONT), A., i, 736.
- Ethoxymethylethanecatechol** (MOUREU), A., i, 434.
- 1-Ethoxy-2-methylcyclohexane-1-carboxylic acid** (SERNOFF), A., i, 584.
- 3-Ethoxy-1-methylmorpholine** (KNORR), A., i, 461.
- Ethoxymethylpropylbenzoic acid**, and amide (GATTERMANN and OBERLÄNDER), A., i, 510.
- 4-Ethoxy-2-methyl-5-isopropylthiobenzanilide** (BAMBERGER), A., i, 695.
- 4:2-, 4:3-, and 4:5-Ethoxymethylthiobenzanilides** (BAMBERGER), A., i, 695.
- 4-Ethoxy-3-methylthiobenzo- ψ -cumidide**, - α -naphthalide, -o- and -p-toluidides, and -m-xylidide (BAMBERGER), A., i, 695, 696.
- 5-Ethoxymorpholine** (KNORR), A., i, 461.
- 2'-Ethoxy- α -naphthadlavone** (ALPERIN and VON KOSTANECKI), A., i, 524.
- 1:4-Ethoxynaphthaldehyde**, behaviour of, towards acetic anhydride and sodium acetate (ROUSSET), A., i, 297.
- α -Ethoxynaphthaldehyde**, and hydrazone (ROUSSET), A., i, 297.
- α -Ethoxynaphthylglyoxylic acid**, ethylic salt, phenylimide (ROUSSET), A., i, 297.
- 1:4-Ethoxynaphthylpropylene**, and picrate (ROUSSET), A., i, 297.
- m-Ethoxyphenol**, α -o-amino-, β -o-amino-, and p-amino-, hydrochlorides of (KIETAIBL), A., i, 344.
- p-Ethoxyphenylbromosuccinamide** (CAMPANARO), A., i, 350.
- Ethoxyphenyldiazolone** (BUSCH and STERN), A., i, 957.
- o-Ethoxyphenyldimethylketopyrrolidone** (CONRAD and HOCK), A., i, 633.
- 3-Ethoxyphenylene-ethenyldiamine**. See 3-Ethoxy-2'-methylbenzimidazole.
- p-Ethoxyphenylfurfuramide** (CAMPANARO), A., i, 350.
- p-Ethoxyphenylglycocinyl-carbamide**, p-Ethoxyphenylcarbamide, -ethylurethane, -methylcarbamide and -phenylcarbamide (FRERICHS and BECKURTS), A., i, 806, 807.
- p-Ethoxyphenyl-hydantoin and -hydantonic acid** (FRERICHS and BECKURTS), A., i, 807.
- Ethoxyphenylic phosphate** (MERCK), A., i, 802.
- p-Ethoxyphenylmalamic acid**, and acetyl derivative (CAMPANARO), A., i, 350.
- p-Ethoxyphenyl methyl ketone**, preparation of (BOESEKEN), A., i, 435.
- Ethoxyphenyl- ψ -thiodiazolone** (BUSCH and STERN), A., i, 957.
- o-Ethoxyphenylthiofluorescein** (GATTERMANN and BERENDES), A., i, 514.
- 3-Ethoxypiperonalcoumaranone** (EMILEWICZ and VON KOSTANECKI), A., i, 368.
- l-Ethoxypropionic acid**, and methylic, ethylic, and metallic salts, specific rotations of (PURDIE and IRVINE), T., 486; P., 1899, 74.
- Ethoxyquinone**, formation of (KIETAIBL), A., i, 345.
- Ethoxysuccinic acid**, preparation of, by the action of ethyliciodide on ethylic malate in presence of silver oxide; also its acid ammonium salt, and their rotatory powers (PURDIE and PITKEATHLY), T., 157; P., 1899, 6.

- Ethoxysuccinic acid**, ethereal salts, specific rotations and molecular volumes of (FRANKLAND), T., 353.
 ethylic salt, preparation of, by action of ethylic iodide on silver malate (PURDIE and PITKEATHLY), T., 154.
- 4-Ethoxythiobenzanilide**, 3-chloro-, (BAMBERGER), A., i, 695.
- p*-Ethoxythiobenzo-*p*-anisidide**, -*m*-bromanilide, -*p*-chloranilide, - α - and - β -naphthalides, -*p*-phenetide, -*o*-, -*m*-, and -*p*-toluidides, and -*m*-xylidides (BAMBERGER), A., i, 695, 696, 697.
- 1- and 2-Ethoxythionaphthanilides** (BAMBERGER), A., i, 695.
- 4-Ethoxythionaphth-anilide**-, -*m*-bromanilide, -*p*-chloranilide, and - α -naphthalide (BAMBERGER), A., i, 695, 966, 967.
- o*- and *p*-Ethoxythiophenols** and their ethylic ethers (GATTERMANN), A., i, 518.
- Ethoxy-*p*-xylic acid** [Me: Me: COOH: OEt = 1:2:4:6], ethylic salt (PERKIN), T., 193.
- Ethyl-*o*-acetamidobenzonitrile** (FRIEDLÄNDER), A., i, 350.
- N*-Ethylacetamidophenol**, and acetate (HINSBERG), A., i, 496.
- Ethylacetoacetic acid**, ethylic salt, action of ethylic thiocyanate on sodium derivative of (KOHLER), A., i, 738.
 dibromo-, ethylic salt, formation of methylmesaconic acid from (SEMENOFF), A., i, 792.
 cyano- and thiocyno-, ethylic salts (KOHLER), A., i, 738.
- Ethylacetonetriethyltrisulphone**, isonitroso- (POSNER), A., i, 605.
- Ethylacrylic acid**. See Pentenoic acid.
- β -Ethylacrylonitrile**. See γ -Methylcrotononitrile.
- Ethylamine**, direct formation of, by reduction of acetamide (GUERBET), A., i, 795.
 boiling point and melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 action of nitrosyl chloride on (SOLO-NINA), A., i, 473.
 hydrochloride, action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
 compounds of, with metallic salts (MATTHEWS), A., ii, 296.
 compounds of, with mercuric chloride (HOFMANN and MARBURG), A., i, 487.
- Ethylamine**, bromo-, hydrobromide, condensation of, with salicylaldehyde (GABRIEL and LEUPOLD), A., i, 104.
- Ethyl-*o*-aminobenzonitrile**, and its acetyl derivative (FRIEDLÄNDER), A., i, 350.
- Ethyl-*m*-aminophenolsaccharin** and its acetyl derivative (MONNET and KOETSCHET), A., i, 213.
- γ -Ethylamino- $\alpha\beta$ -propylenic glycol** (ethylpropanediolamine) (CHIARI), A., i, 325; KNORR and KNORR), A., i, 412.
- Ethyl amyl ketone**, and *iso*amyl ketone, oxidation of, by nitric acid (FILETI and PONZIO), A., i, 111.
 and their isonitroso-derivatives (PONZIO) and DE GASPARI), A., i, 252.
- Ethylaniline**, formation of (BAILLIE and TAFEL), A., i, 268.
m-chloro-, and *m*-chloronitroso-, *m*-chloronitronitroso-, *m*-chloronitro-, 2:4-dinitro-, *p*-nitronitroso-, and 2:4-dinitronitroso- (STOERMER and HOFFMANN), A., i, 43.
- Ethylanilinoquinonedicarboxylic acid**, ethylic salt (GUINCHARD), A., i, 701.
- Ethylbenzamide**, formation of (WHEELER and JOHNSON), A., i, 431.
- Ethylbenzene** (*phenylethane*), boiling point, and melting point of (LADENBERG and KRÜGEL), A., ii, 545.
 nitration of (KONOWALOFF), A., i, 844.
- Ethylbenzene**, dichloro- (RADZIEWANOWSKI and SCHRAMM), A., i, 198.
*tri*cyno-, from action of benzylic iodide on silver cyanoform, and its hydrolysis (HANTZSCH and OSSWALD), A., i, 406.
- Ethylbornylamine**, hydrochloride, hydroiodide, nitrite, platinumchloride, nitrosamine, acetyl and benzoyl derivatives (FORSTER), T., 945; P., 1899, 72.
- Ethylisobutylamine**, and its nitroso-compound; also the action of sodium methylic sulphate on it (MARCKWALD and DROSTE-HUELSHOFF), A., i, 326.
- Ethyl butyl ketone**, oxidation of by nitric acid (FILETI and PONZIO), A., i, 111.
 isonitroso-derivatives of, from action of nitrous acid on it (PONZIO and DE GASPARI), A., i, 252.
- Ethyl butyl diketone** (*propionyl valeryl*) and its dioxime and osazone (FILETI and PONZIO), A., i, 111.
- Ethylchlorophosphine**, and action of water, chlorine and sulphur on (GUICHARD), A., i, 563.
- Ethyleitraconic acid**, and its anhydride; also its conversion into ethylitaconic and ethylmesaconic acids, its reduction, and the action of hydrogen bromide on it (FITTIG and GLASER), A., i, 333.

- Ethyleitraconic anhydride**, action of hydrobromic acid on (SEMENOFF), A., i, 866.
- Ethyleitrapyrotartaric acid**, bromo- (FITTIG and GLASER), A., i, 334.
- α -Ethylcrotononitrile**, and dimethylamine derivative (HENRY), A., i, 568.
- Ethylcyanacetic acid**, ethylic salt (HESSLER), A., i, 898.
- Ethylcymene** [Me : Et : Pr β = 1 : 2 : 4] (VERLEY), A., i, 207; (BOUVEAULT), A., i, 287.
- r*- and *l*-Ethyl-desmotropo-santonins** (ANDREOCCI and BERTELO), A., i, 301.
- Ethylidinaphthaposafranine**, and hydrochloride (FISCHER and HEPP), A., i, 79.
- Ethylene**, boiling point of (LADENBURG and KRÜGEL), A., ii, 545.
liquid (LADENBURG and KRÜGEL), A., ii, 208.
density of (LADENBURG and KRÜGEL), A., ii, 467.
compressed, solution of solids and liquids in (VILLARD), A., ii, 143.
viscosity of (BREITENBACH), A., ii, 403.
action of ozone on (OTTO), A., ii, 282.
action of nitric anhydride and peroxide on (DEMJANOFF), A., i, 845.
- Ethylene, $\alpha\beta$ -dibromo-** (*acetylene dibromide*) (ELBS and NEWMANN), A., i, 98; (SWARTS), A., i, 734.
tribromo- (CROSSLEY), P., 1898, 248; (ELBS and NEWMANN), A., i, 98.
action of antimony pentachloride on (SWARTS), A., i, 725.
tetrabromo- (SWARTS), A., i, 734.
tribromonitro-, from action of nitrous anhydride on tribromomethylene (ELBS and NEWMANN), A., i, 98.
 α -dichloro-, formation of (JOCITSCH and FAWORSKY), A., i, 786.
tetrachloro-, action of hypochlorous acid on (HENRY and ASCHMANN), A., i, 258.
oxidation of (SWARTS), A., i, 734.
chlorotribromo- (ELBS and NEWMANN), A., i, 98.
 $\alpha\beta$ -dichloro- α -bromo- (SWARTS), A., i, 725.
 $\alpha\beta$ -dichloro- $\alpha\beta$ -dibromo- (SWARTS), A., i, 725, 734.
difluorodibromo-, **fluorotribromo-**, and **fluorodibromo-**, oxidation of (SWARTS), A., i, 734.
diiodo- (*acetylene di-iodide*), stereoisomeric modifications of (KEISER), A., i, 398.
- Ethylenecetonitrile** (*cyclopropanecarboxylonitrile*) (HENRY), A., i, 676.
- 5:5-Ethylene-bisimino-1-phenyltriazole** and its picrate (CUNEO), A., i, 549.
- Ethylenediamine**, and its hydrate and dihydrochloride, thermochemistry of (BERTHELOT), A., ii, 726.
compounds of, with salts of nickel, copper, zinc, cadmium, and cobalt (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.
action of, on isobutaldehyde, isovaleraldehyde, acetaldehyde, and glyoxal (KOLDA), A., i, 328.
action of nitrosyl chloride on (SOLONINA), A., i, 561.
action of trimethylenic bromide and benzenesulphonic chloride on (BLEIER), A., i, 664.
- Ethylenedibenzenesulphonamide**, action of trimethylenic bromide and benzylic chloride on (BLEIER), A., i, 664.
- Ethylenedibenzimidazole** and salts (WALTHER and PULAWSKI), A., i, 640.
- Ethylenedipiperidyl methiodide** and dimethiodide (ASCHAN), A., i, 542.
- Ethylene-*p*-toluenesulphonamide** (HOWARD and MARCKWALD), A., i, 750.
- Ethylenelactic acid**, nitrile of. See β -Hydroxypropionitrile.
- Ethylenepropylenedipiperidyl bromide** (ASCHAN), A., i, 542.
- Ethylenesulphonic acid** (KÖHLER), A., i, 19.
bromo-, and its chloride (KÖHLER), A., i, 20, 488.
- Ethylenetetra-carboxylic acid** (*dicarbin-tetra-carboxylic acid*), ethylic salt, preparation of (BLANK and SAMSON), A., i, 484.
- Ethylenethiolcarbamic acid** (WHEELER and BARNES), A., i, 798.
- Ethylene- ψ -thiocarbamide**, action of nitrous acid on, and its constitution; also its nitro-derivative (GABRIEL and LEUPOLD), A., i, 104.
- Ethylenetrimethylenediimine** (HOWARD and MARCKWALD), A., i, 750.
- Ethylenetrimethylenedi-*p*-toluenesulphonimide** (HOWARD and MARCKWALD), A., i, 750.
- Ethylenic bromide**, from action of aluminium bromide on ethylic bromide, and action of aluminium bromide on (MOUNEYRAT), A., i, 1.
effect of pressure on melting point curves of (TAMMANN), A., ii, 636.
equilibrium between picric acid, β -naphthol and (BRUNI), A., ii, 406.
deposition of ferrous salts from (THOMAS), A., ii, 426.

- Ethylene bromide**, action of solution of aluminium bromide in carbon disulphide on (KONOWALOFF), A., i, 470.
 action of chlorine on, in presence of aluminium chloride (MOUNEY-RAT), A., i, 241.
 chloride, combination of, with aluminium chloride and carbon disulphide (KONOWALOFF), A., i, 471.
 chlorobromide and cyanide, molecular weights of, in ethylene bromide solution (BRUNI and GORNI), A., ii, 731.
- Ethylene glycol**, preparation of (HENRY), A., i, 660.
 specific heat, and heat of vaporisation of (LUGININ), A., ii, 269.
 melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 action of hydrobromic and hypobromous acids on (MOKIEWSKY), A., i, 729.
 action of hydrogen peroxide on, in presence and in absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.
 action of ozone on (OTTO), A., ii, 282.
 oxidation of, by atmospheric oxygen in sunlight in presence of iron (FENTON and JACKSON), T., 10; P., 1898, 240.
 aluminium derivative, preparation of (TISTSCHENKO), A., i, 408.
 chlorhydrin, action of ammonia on (CHANCELL), A., i, 411.
 methylene, ethylidene, and isobutylidene derivatives (VERLEY), A., i, 665.
- Ethylene nitrosite and nitrate**, and their reduction (DEMJANOFF), A., i, 845.
 oxide, action of, on ethylic sodiummalonate (TRAUBE and LEHMANN), A., i, 417.
 condensation of, with ammonia and amines (KNORR), A., i, 461.
 dithiocarbonate, synthesis of (KONOWALOFF), A., i, 470.
- 1-Ethyl-2:3-ethylenepiperidine**, and its salts (LADENBURG and KRÜGEL), A., i, 303.
- α -Ethylglyceric acid** (*dihydroxyvaleric acid*), and lead salt; also oxidation (SEMENOFF), A., i, 866.
- Ethyl heptadecyl ketone**, action of nitric acid on; also oxime (PONZIO and GASPARI), A., i, 861.
 isonitroso-, and action of hydroxylamine on (PONZIO and GASPARI), A., i, 861.
- Ethyl isohexyl ketone**, oxidation of, by nitric acid (FILETI and PONZIO), A., i, 111.
- Ethyl isohexyl ketone and its isonitroso-derivative** (PONZIO and DE GASPARI), A., i, 253.
- Ethylhydroxyamylthiocarbamide**, and the action of hydrochloric acid on it (JÄNECKE), A., i, 477.
- Ethylic alcohol**, synthesis of (WOOD), A., i, 182; (BERTHELOT), A., i, 471.
 manufacture of, from sawdust (SIMONSEN), A., i, 471.
 denatured, regeneration of, by means of bleaching powder (BUISINE), A., i, 728.
 dielectric constant of, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
 copper | zinc cell with hydrochloric or trichloroacetic acid, E.M.F. of (SALVADORI), A., ii, 721.
 specific heat and latent heat of vaporisation of (LUGININ), A., ii, 269.
 critical temperature of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
 melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 boiling points of mixtures of, with benzene (THAYER), A., ii, 140.
 boiling points of mixtures of, with acetone or chloroform (THAYER), A., ii, 402.
 vapour pressures of solutions of, in benzene (LEHFELDT), A., ii, 633.
 vapour pressures of mixtures of, with benzene, toluene, or carbon tetrachloride (LEHFELDT), A., ii, 11.
 depression of freezing point of water by (RAOULT), A., ii, 203.
 polymerisation of, in benzene or toluene (SPEYERS), A., ii, 468.
 aqueous, dissociation of electrolytes and inversion of sugar in (COHEN), A., ii, 275.
 equilibrium between ammonium or sodium sulphates, or potassium carbonate, water and (DE BRUYN), A., ii, 591.
 equilibrium between potassium nitrate, water and, temperatures at which two liquid phases appear (DODGE and GRATTON), A., ii, 408.
 equilibrium between water, potassium carbonate and (SNELL), A., ii, 408.
 velocity of reaction between ethylic benzenesulphonate and (SAGREBIN), A., ii, 735.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 669.

Ethylic alcohol, action of hydrogen peroxide on, in presence and in absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.
 action of mercuric chloride on, in presence of sodium ethoxide and sodium acetate (HOFMANN), A., i, 485.
 action of phosphorus tribromide on (MENSCHUTKIN), A., i, 937.
 action of ozone on (OTTO), A., ii, 282.
 flash points of aqueous solutions of (RAIKOW), A., i, 847.
 compound of, with carbon dioxide and water (HEMPEL and SEIDEL), A., ii, 152.
 influence of, on human respiration (WENDLESTADT), A., ii, 602.
 analysis of aqueous (CURTIS), A., ii, 184.
 detection of, in ether (LASSAR-COHN), A., ii, 528.
 estimation of, in presence of light petroleum (RICHMOND), A., ii, 698.
 estimation of methylic alcohol in (TRILLAT), A., ii, 130.
Ethylic alcohol, bromo-, and action of zinc dust on (MOKIEWSKY), A., i, 729.
 $\beta\beta$ -bromonitro-, and its nitrate and acetate; also action of formaldehyde and acetaldehyde on (MAAS), A., i, 322.
 α - and β -cyano-. See α - and β -Hydroxypropionitriles.
 β -nitro-, action of phosphorus pentachloride, formaldehyde, and piperidine on; also acetate and sodium derivative (HENRY), A., i, 728.
Ethylic allylic ether, compound of, with sulphur dioxide (SOLONINA), A., i, 682.
 amyle ether (PETER), A., i, 558.
 density, specific rotation and molecular volume of (FRANKLAND), T., 360.
 sulphide, specific rotation of (BRUCHONENKO), A., ii, 265.
 n - and *iso*-amyle sulphides, specific rotation of, and the action of methylic iodide on (BRUCHONENKO), A., i, 189.
 bromide, melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.
 velocity of reaction of, with triethylamine (HEMPTINNE and BEKAERT), A., ii, 359.
 action of aluminium bromide on (MOUNEYRAT), A., i, 1; (KONOWALOFF), A., i, 471.

Ethylic $\beta\gamma$ -dibromobutylic ether (CHARON), A., i, 849.
 α -bromopropylic ether (WOLKOFF and MENSCHUTKIN), A., i, 196.
 carbonate, specific heat, and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 chloride, solution of, in compressed methane (VILLARD), A., ii, 143.
 crotonylic ether (CHARON), A., i, 848.
 β -diethylallylic ether (IPATIEFF), A., i, 658.
 dimetaphosphate (TANATAR), A., ii, 417.
Ethylic ether, influence of water on the velocity of formation of (DE BRUYN and STEGER), A., i, 849.
 melting point of (LADENBURG and KRÜGEL), A., ii, 545.
 critical temperature of mixtures of, with water (KUENEN and ROBSON), A., ii, 356.
 depression of the freezing point of a mixture of acetone and water by (WADDELL), A., ii, 403.
 specific volume of (LEDUC), A., ii, 729.
 diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
 mutual solubilities of water and (HERZ), A., ii, 83.
 compound of, with carbon dioxide and water (HEMPEL and SEIDEL), A., ii, 152.
 action of liquid hydrogen iodide on (COTTRELL and ROGERS), A., i, 323.
 extraction of liquids with, apparatus for (BAUM), A., ii, 802.
 detection of alcohol in (LASSAR-COHN), A., ii, 528.
 estimation of, in presence of light petroleum (RICHMOND), A., ii, 698.
Ethylic ether, trichloro-, from action of chlorine on triethylic borate (COPAU), A., i, 183.
 nitro- (HENRY), A., i, 729.
Ethylic hexylenic ether (IPATIEFF), A., i, 658.
 hydrogen carbonate (HEMPEL and SEIDEL), A., ii, 152.
 hyponitrite (DIVERS), T., 121.
 iodide, viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.
 combination of, with aluminium iodide and carbon disulphide (KONOWALOFF), A., i, 471.
 mercaptan, condensation of, with vinylacetaminine and triacetaminine (PAULY), A., i, 228.

- Ethyl mercaptan**, amino-, from action of hydrochloric acid on mercaptothiazoline (GABRIEL and LEUPOLD), A., i, 104.
 metaborate, non-existence of (COPAUX), A., i, 847.
 β -methyl ethyl allylic ether (IPATIEFF), A., i, 658.
 phosphate, from oxidation of triethylphosphine (ENGLER and WEISSBERG), A., i, 189.
 velocity of hydrolysis of (CAVALIER), A., ii, 14.
disulphide, *dithiocyano-* (KOHLE), A., i, 737.
 trimetaphosphate (TANATAR), A., ii, 417.
- Ethylideneacetone**, preparation of (CLAISEN), A., i, 667.
trichloro-, and action of hydroxylamine and potash on (SALKIND), A., i, 733.
- Ethylideneaminoguanidine**, and its *mono-* and *trichloro-*derivatives, salts of (THIELE and DRALLE), A., i, 7.
- Ethylideneazine** (CURTIUS and ZINKEN), A., i, 166.
- Ethylidenebismalonic acid**. See Butanetetracarboxylic acid.
- Ethylidenechlorodiphenamines**, chloro-derivatives of (EIBNER), A., i, 42.
- Ethylidenediacetic acid**. See *β -Methylglutaric acid*.
- Ethylidenediacetoacetic acid**, ethylic salt, desmotropic forms of (RABE), A., i, 289.
- Ethylidenediphenamine**, *dichloro-* and *di-p-chloro-*, *trichloro-*, and *di-p-nitro-* (EIBNER), A., i, 41, 42.
- Ethylidene-p-ditolamine**, *trichloro-* (EIBNER), A., i, 42.
- Ethylidenehydroxybutylenethylenediamine** (KOLDA), A., i, 328.
- Ethylideneimine**, constitution of; also the action of hydrogen sulphide on it (DELÉPINE), A., i, 326.
 from aldehyde-ammonia (DE FORCRAND), A., i, 109.
trichloro-, from the action of sodium hypochlorite on aldehyde-ammonia in presence of acetic acid (DELÉPINE), A., i, 327.
- Ethylidenemalonic acid** (*propylidenedicarboxylic acid*), ethylic salt, formation of (KNOEVENAGEL), A., i, 116.
- Ethylidene-p-nitrodiphenamine**, *trichloro-* (EIBNER), A., i, 42.
- Ethylidenephthalide**, preparation of (GOTTLIEB), A., i, 511.
- Ethylidenephthalimidylacetic acid**, and its silver salt (GOTTLIEB), A., i, 512.
- Ethylitaconic acid** and its reduction, and the action of bromine and hydrogen bromide on it (FITTIG and GLASER), A., i, 333.
- Ethylitapyrotartaric acid**, bromo- and *di*bromo- (FITTIG and GLASER), A., i, 334.
- Ethyl-laurotetanine** and its hydriodide (FILIPPO), A., i, 313.
- Ethylmalonic acid**, potassium salt, heat of formation of (MASSOL), A., ii, 204.
l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
- Ethylmalononitrile** (HESSLER), A., i, 899.
- Ethylmesaconic acid**, preparation of, from ethylic *di*bromopropylacetate (SEMENOFF), A., i, 792.
 and its reduction (FITTIG and GLASER), A., i, 334.
- iso-Ethylmethyl nitramine*, action of sulphuric acid on (FRANCHIMONT and UMBROVE), A., i, 106.
- Ethylmorphine hydrochloride** (*dionine*), and its detection and therapeutic uses (HESSE), A., i, 724.
- 1'-Ethyl naphthalan morpholine salts** and methiodide (KNORR), A., i, 783.
- Ethyl naphthaphenazonium**, and amino-derivative (SCHAPOSCHNIKOFF), A., i, 505, 506.
 salts, chloro- (FISCHER and HEPP), A., i, 78.
- Ethyl naphthaphenosaffranine**, platinum-chloride (SCHAPOSCHNIKOFF), A., i, 506.
- Ethyl naphthindolinonequinonecarboxylic acid**, ethylic salt (LIEBERMANN), A., i, 523.
- Ethyl nitramine** and its metallic derivative, action of sulphuric acid and of propylic iodide on (FRANCHIMONT and UMBROVE), A., i, 106.
- Ethyl nitrolic acid**, erythro- and leuco-salts of; constitution; action of alkalis, sodium amalgam and bromine on; also ethers (GRAULAND HANTZSCH), A., i, 187.
- Ethyl oxalic chloride**. See Glyoxylic acid, chloro-, ethylic salt.
- Ethyl oxychlorophosphine** (GUICHARD), A., i, 564.
- Ethyl paraconic acid**, ethylic salt, and its conversion into ethylitaconic acid (FITTIG and GLASER), A., i, 333.
- Ethyl pentadecyl ketone**, *isonitroso-*, and action of hydroxylamine on (PONZIO and GASPARI), A., i, 860.
- γ -Ethyl pentane*, *α -di*bromo-. See Heptane, *di*bromo-.
- γ -Ethyl pentylene*, *α -bromo-*. See Heptylene, bromo-.

Ethylpentylene- ψ -thiocarbamide

(JÁNEČEK), A., i, 477.

N-Ethylphenacetine (HINSBERG), A., i, 495.

Ethyl-o-phenetidine (FRIEDLÄNDER), A., i, 350.

p-Ethylphenol, synthesis of (MEISSEL), A., i, 880.

Ethylphosphinic acid (GUICHARD), A., i, 564.

diethylic salt, from oxidation of triethylphosphine (ENGLER and WEISSBERG), A., i, 189.

Ethylphosphinous acid (GUICHARD), A., i, 564.

1'-Ethylphthalazine, salts, and 4'-chloro-, and 4'-iodo-derivatives (PAUL), A., i, 777.

3'-Ethylphthalazone (PAUL), A., i, 778.

Ethylphthalide, and nitro- (GOTTLIEB), A., i, 512.

1-Ethyl-2-pipecoline (LADENBURG and KRÜGEL), A., i, 303.

N-Ethyl- α -pipecoleyl- β -alkine. See 2-Methyl-3-hydroxymethyl-1-ethyl- Δ^2 -tetrahydropyridine.

N-Ethyl- α -pipecoleyl- β -methylalkine. See 2-Methyl-1-ethyl-3-hydroxyethyl- Δ^2 -tetrahydropyridine.

1-Ethyl-2-pipecoleine (LADENBURG and KRÜGEL), A., i, 303.

rotation of (HOHENEMSER and WOLFENSTEIN), A., i, 937.

N-Ethyl- α -pipecolyl- β -alkine. See 2-Methyl-3-hydroxymethyl-1-ethyl-piperidine.

N-Ethyl- α -pipecolyl- β -methylalkine. See 2-Methyl-1-ethyl-3-hydroxyethyl-piperidine.

Ethylpropanediolamine. See γ -Ethyl-amino- $\alpha\beta$ -propylenic glycol.

1-Ethyl-2:3-propylenepiperidine (LADENBURG and ROSENZWEIG), A., i, 304.

Ethylpropyldiketone (*propionylbutyryl*), and its dioxime (FILET and PONZIO), A., i, 111.

Ethyl propyl ketone, isonitroso-derivatives of, from action of nitrous acid on it (PONZIO and DE GASPARI), A., i, 252.

Ethylpropylnitramine, and *iso*-Ethyl-propylnitramine (FRANCHIMONT and UMBROVE), A., i, 105, 106.

1:3-Ethylpropylypiperidine, and **1:3-Ethylisopropylpiperidine** (LADENBURG and ROSENZWEIG), A., i, 304.

2-Ethylpyridine, mercurichloride (LADENBURG), A., i, 387.

4-Ethylpyridine (β -lutidine), action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.

Ethylrosindone (SCHAPOSCHNIKOFF), A., i, 506.

Ethylrosinduline, nitrate (SCHAPOSCHNIKOFF), A., i, 506.

d-Ethylsantonous acid, from reduction of l-ethyl-desmotroposantonin (ANDREOCCI and BERTOJO), A., i, 301.

Ethylstrychnine (MOUFANG and TAFEL), A., i, 310.

Ethylsuccinic acid, β -bromo- (SEME-NOFF), A., i, 866, 867.

Ethyltetraethyl-m-aminophenolsaccharein (MONNET and KETSCHET), A., i, 214.

1'-Ethyltetrahydrophthalazine, and dibenzoyl derivative (PAUL), A., i, 777.

Ethyltetrahydroquinoline (BAILLIE and TAFEL), A., i, 268.

2-Ethyltetramethylene disulphide and disulphone (AUTENRIETH and WOLFF), A., i, 580.

Ethylthecbromines (BRUNNER), A., i, 306.

Ethylthiocarbimide, action of, on sodium acetanilide (DIXON), T., 384.

Ethyltrithiocarbonic acid, potassium salt, electrolysis of solution of (SCHALL and KRASZLER), A., i, 414.

Ethylthiochlorophosphine (GUICHARD), A., i, 564.

Ethyl-o-toluidine (BAILLIE and TAFEL), A., i, 268; (FRIEDLÄNDER), A., i, 350.

Ethylurethane, nitroso-, behaviour of, towards alcoholic potash (VON PECHMANN), A., i, 184.

Ethyl-m-xylylidine (FRIEDLÄNDER and BRAND), A., i, 351.

Eucaine, detection of (VULPIUS), A., ii, 392.

Eucaine-B, physiological action of (VINCI), A., ii, 316.

Eucalyptus capitellata, *E. dextropinea*, *E. eugenoides*, *E. lavopinea*, and *E. macrorrhyncha*, oils of (SCHIMMEL and Co.), A., i, 923.

obliqua, *E. resinifera*, *E. rostrata*, oils of (SCHIMMEL and Co.), A., i, 299.

Eucarvone (WALLACH), A., i, 531.

Euchroic acid, and **Paraeuchroic acid** (MATHEWS), A., i, 58.

Eugenol, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.

iso-Eugenol, action of ozone on (OTTO), A., ii, 282.

Eutropic series (LINCK), A., ii, 415.

Euxenite-like mineral from Swaziland (PRIOR), A., ii, 434.

Evansite from Moravia (KOVÁŘ), A., ii, 672.

Everninic acid, presence of, in *Physcia ciliaris* (HESSE), A., i, 382.

Excretion of iron in the guinea pig (SWIRSKI), A., ii, 373.

Expansion, thermal, of ordinary and Jena glass (LADENBURG and KRÜGEL), A., ii, 467.

Extraction apparatus (FOERSTER), A., i, 121.

F.

Fabianaglucoannoid (KUNZ-KRAUSE), A., i, 201, 448.

Fabianaresen, and its bromo-, acetyl and benzoyl derivatives and reduction product (KUNZ-KRAUSE), A., i, 449.

Fabianol (KUNZ-KRAUSE), A., i, 448.

Fæces, estimation of phosphoric acid in (NEUMANN), A., ii, 54.

Fahlerz. See Tetrahedrite.

Farmyard manure. See Agricultural chemistry.

Fat, determination of melting point of (LE SUEUR and CROSSLEY), A., ii, 271; (DOWZARD), A., ii, 725. supposed conversion of, into glycogen in the living body (PFLÜGER), A., ii, 604.

formation of, from proteid in the living body (CREMER), A., ii, 775.

formation of, in liver in cases of gastro-enteritis (THIEMICH), A., ii, 233.

formation of, in poisoning by phloridzin and phosphorus (RAY, McDERMOTT, and LUSK), A., ii, 783.

formation of, supposed, in phosphorus poisoning (ATHANASIU), A., ii, 441.

oxidation of, by means of ozone (HANRIOT), A., i, 190.

oxidation of, separation of the dibasic acids formed by (BOUVEAULT), A., i, 480.

rancidity of (SCALA), A., i, 478.

source of, in the fetus (THIEMICH), A., ii, 775.

analysis of (BÖMER), A., ii, 191.

refraction constants of (PROCTER), A., ii, 258.

saponification of, apparatus for (ANNAN), A., ii, 343.

detection of phytosterol and cholesterol in (KREIS and WOLF), A., ii, 343.

estimation of, in animal tissues and fluids (NERKING), A., ii, 191; (KNOPFELMACHER), A., ii, 821.

estimation of, in food stuffs (METHNER), A., ii, 821.

estimation of, in milk (KÜHN), A., ii, 582; (RICHMOND and ROSIER; RICHMOND and O'SHAUGHNESSY), A., ii, 708; (SONN), A., ii, 709; (BONNEMA; TIMPE; WINDISCH), A., ii, 822.

Fat, estimation of free phosphorus in (LOUISE), A., ii, 807.

Fats. See also:—

Butter.

Cacao butter.

Lard.

Margarine.

Tallow.

Fatigue, muscular, causes of (LEE), A., ii, 312.

"Favas" from Brazil (HUSSAK), A., ii, 432.

Fehling's solution (BULLNHEIMER and SEITZ), A., i, 868.

the blue salt of (MASSON and STEELE), T., 725; P., 1899, 120.

Felspar from Russia, &c. (LOEWINSON-LESSING), A., ii, 766.

artificial (MOROZEWICZ), A., ii, 762.

action of water on (CLARKE), A., ii, 109.

pelitisation of (LOEWINSON-LESSING), A., ii, 767.

decomposition of, by roots (SESTINI), A., ii, 798.

See also Anorthoclase, Oligoclase,

Orthoclase, Plagioclase.

Fenchene, behaviour of, towards glacial acetic and sulphuric acids (SCHIMMEL and Co.), A., i, 299.

d- and *l*-**Fenchene** (WALLACH and HERTZ), A., i, 66.

DD- and *DL*-**Fenchocamphorone**, oxime, semicarbazone (WALLACH and HERTZ), A., i, 66.

α-**Fencholenic acid**, and salts, nitrile (COCKBURN), T., 506; P., 1899, 106.

β-**Fencholenic acid**, and salts, amide and nitrile (COCKBURN), T., 503; P., 1899, 106.

Fenchone, behaviour of, towards sulphuric acid (MARSH), T., 1058; P., 1899, 196.

l-**Fenchone**, reconversion of, into *d*-fenchylic alcohol (BOUCHARDET and LAFONT), A., i, 157.

DL-**Fenchylic alcohol**, behaviour of, towards phosphorus pentachloride (WALLACH and HERTZ), A., i, 65.

Fergusonite (?) from Swaziland (PRIOR), A., ii, 434.

an endothermic mineral (RAMSAY and TRAVERS), A., ii, 35.

Ferment, proteolytic, presence of, in fungi (BOURQUELOT and HÉRISSEY), A., i, 313.

cellulose-digesting, in *Helix pomatia* (BIEDERMANN and MORITZ), A., ii, 166.

Ferments, secretion of (DIENERT), A., ii, 683.

diastatic, action of, on inulin (CHITTENDEN and SIVITER), A., ii, 310.

Ferments. See also :—

Enzymes.

Yeast.

Fermentation, by yeast-, influence of oxygen and mechanical shaking on (BUCHNER and RAPP), A., ii, 169.

of galactose by yeasts, influence of various carbohydrates on (DIENERT), A., ii, 442.

of sugars by yeasts and moulds and influence of nitrogenous matter thereon (DUBOURG), A., ii, 376.

alcoholic, of Barbary figs (ROLANTS), A., ii, 784.

action of pancreas on (LÉPINE and MARTZ), A., ii, 442.

the formation of glycerol in, and influence of various conditions on (LABORDE), A., ii, 784.

production of aromatic substances from vine leaves (JACQUEMIN), A., ii, 377.

influence of various poisons on (WEHMER), A., ii, 786.

by yeast, relation of, to food supply (STERN), T., 205 ; P., 1898, 183.

without yeast cells (BUCHNER and RAPP), A., ii, 236, 606.

lactic (CLAFLIN), A., i, 12.

schizomycetic (EMMERLING), A., ii, 570.

Ferns, chlorophylls and other constituents of (ÉTARD), A., ii, 792.

Ferric compounds. See under Iron.

β-Ferricyanides (LOCKE and EDWARDS), A., i, 407.

Ferrocyanides, estimation of (MULLER), A., ii, 616.

estimation of, in spent gas purifying material (DONATH and MARGOSCHES), A., ii, 527.

Ferrous compounds. See under Iron.

Ferulic acid, presence of, in opoponax (TSCHIRCH and KNITL), A., i, 714.

Fescue. See Agricultural chemistry.

Fever, composition of the urine in (VON MORACZEWSKI), A., ii, 441.

excretion of chlorides in (HUTCHISON), A., ii, 168.

Fibre, estimation of, in fodders and foods (KÖNIG), A., ii, 68.

Fibrin, chemical process in the formation of, from fibrinogen (HAMMARSTEN), A., ii, 776.

crystallisation of (MAILLARD), A., i, 466.

crystalline, nature of so-called (DZIERZGOWSKI), A., ii, 777.

solution of, by bacteria, in presence of chloroform (SALKOWSKI), A., i, 724.

ultimate action of proteolytic ferments on (HARLAY), A., i, 656.

Fibrinogen, origin of, in the living body (MATHEWS), A., ii, 777.

Fibroin, action of acids on (WETZEL), A., i, 466.

Fibrolite, from Aberdeenshire (HEDDLE), A., ii, 497.

Ficus macrophylla, *F. elastica*, *F. nitida*, *F. laevigata*, caoutchouc from (LINDET), A., ii, 508.

Fiedlerite, from Laurion, Greece (SMITH and PRIOR), A., ii, 483.

Fig. See Agricultural chemistry.

Filicic acid, and its diacetate, dichloride, *mono-*, *di-*, *tri-*, and *tetra-*bromo-, and tetrachloro-derivatives, methyl, ethyl, and diethyl ethers (BOEHM), A., i, 804.

Filtering medium, new form of (SARGENT and FAUST), A., ii, 516.

Filters, asbestos (LOHSE), A., ii, 801.

Filtration of small quantities of liquid (WINKLER), A., ii, 277.

rate of, of water or alcohol through various media, and of organic liquids (HAUSSER), A., ii, 277.

Fisetin, potassium derivative of, and Schmid's disodium derivative (PERKIN), T., 441 ; P., 1899, 65.

Fish, digestibility of (SCHULZE), A., ii, 509.

Fishes, metabolism of (KNAUTHE), A., ii, 310.

Fish oils, saponification value of (FAHRION), A., ii, 711.

Flames, containing vaporised salts, electric conductivity and luminosity of (SMITHELLS, DAWSON, and WILSON), A., ii, 722.

Flash points of organic compounds (RAIKOW), A., i, 847.

Flavaniline (4-amino-2'-phenyl-3'-methylquinoline), formation of (BRÄUTIGAM), A., i, 754.

Flavescin, use of, in alkalimetry (GLASER), A., ii, 573.

Flavinduline, condensation of, with deoxybenzoin (SACHS), A., i, 239.

Flavone, 2-bromo- (VON KOSTANECKI, and LUDWIG), A., i, 220.

Flavone-group, syntheses in (VON KOSTANECKI), A., i, 368.

of colouring matters, salts of, and their acidic and basic properties and structure (PERKIN), T., 436, 450 ; P., 1899, 65.

Flour, detection of sawdust in (LE ROY), A., ii, 453.

Fluoran, amino-, *i*-diamino-, nitro-, and *i*-dinitro- (MEYER and FRIEDLAND), A., i, 764.

Fluorescein as an indicator (WADDELL), A., ii, 83 ; (GLASER), A., ii, 573.

- Fluorescein**, derivative ($C_{20}H_{15}O_2N_3$) and ethylic salt, and hydrochloride (MEYER and GROSS), A., i, 946.
hydrochloride (GATTERMANN and OEHMICHEN), A., i, 514.
phenylhydrazide, and dichloride, and dimethylic and diethylic ethers (GATTERMANN and GANZERT), A., i, 514.
- Fluorescein**, thio- (GATTERMANN and GANZERT), A., i, 513.
- Fluorescence**, production of, by bacteria (JORDAN), A., ii, 313.
- Fluorine** in mineral waters (CARLES), A., ii, 308; (PARMENTIER), A., ii, 501, 675; (LEPIERRE), A., ii, 602.
preparation of, in copper vessels (MOISSAN), A., ii, 593.
detection of, in wine (PARIS), A., ii, 804.
estimation of (HEMPEL and SCHEFFLER), A., ii, 380.
- Fluorides**, physiological action of (BALDWIN), A., ii, 605.
- Fluor spar**, decomposition of, by oxalic or tartaric acid (PATERNO and ALVISI), A., ii, 17.
- Fodder**, estimation of fibre in (KÖNIG), A., ii, 68.
estimation of sugar in (FOERSTER), A., ii, 818.
- Fœtus**, human, inorganic salts and iron in the (HUGOUNENQ), A., ii, 503.
- Food**, proteid, digestibility of certain (SCHULZE), A., ii, 509.
artificial digestion of constituents of (WEDEMEYER), A., ii, 460.
organic, effect of, on inorganic metabolism (PUGLIESE), A., ii, 40.
detection of formaldehyde in (JEAN), A., ii, 704.
detection of metals in, by Kjeldahl's process (HALENKE), A., ii, 696.
detection of "saccharin" in (HASTERLIK), A., ii, 819.
estimation of fat in (METHNER), A., ii, 821.
estimation of fibre in (KÖNIG), A., ii, 68.
tinned, estimation of lead in (CARLES), A., ii, 183.
- Forest fires**. See Agricultural chemistry.
- Formaldehyde**, hydrate of (DELÉPINE), A., ii, 143.
action of, on ethylenic glycol and glyceryl chlorhydrin in presence of phosphoric acid (VERLEY), A., i, 665.
action of hydrogen peroxide on (HARDEN), P., 1899, 158; (BLANK and FINKENBEINER), A., ii, 188, 820; (KASTLE and LOEVENHART), A., i, 565.
- Formaldehyde**, action of mercuric sulphate on (DENIGES), A., i, 414.
formation of morfose from (LOEW), A., i, 850.
action of, on derivatives of β -naphthylamine (MORGAN), P., 1899, 9.
action of, on nitric acid (VANINO), A., ii, 479.
action of oxygen on solutions of; alone and in presence of potash and platinum sponge (DELÉPINE), A., i, 246.
action of, on proteids (LEPIERRE), A., i, 654.
condensation of, with quinaldine (KOENIGS), A., i, 389.
condensation of, with semicarbazide (THIELE and BAILEY), A., i, 109.
action of, on silver haloids and thiocyanate (VANINO), A., ii, 249.
combination of, with terpenes (KRIEWITZ), A., i, 298.
action of, on digestion (WEDEMEYER), A., ii, 460.
action of, on beet-root seeds (JODIN), A., ii, 44.
detection of (LEONARD and SMITH), A., ii, 454; (NEUBERG), A., ii, 580; (VANINO), A., ii, 703.
detection of, in milk (LEYS), A., ii, 819.
detection of, in food stuffs (JEAN), A., ii, 704.
estimation of (BLANK and FINKENBEINER), A., ii, 188, 820; (NEUBERG), A., ii, 580.
estimation of small quantities of (NICLOUX), A., ii, 253.
examination of (SMITH), A., ii, 188.
- Diformaldehyde** (*diozymethylene*), formation of (GRASSI-CRISTALDI and MASELLI), A., i, 409.
- Metaformaldehyde**, heat of formation of (DELÉPINE), A., ii, 142.
- Paraformaldehyde** (*triozymethylene*), heat of formation of (DELÉPINE), A., ii, 142.
acetates and hydrate of (GRASSI-CRISTALDI and MASELLI), A., i, 409.
dichloro- (*dichloromethylal*), and the action of sodium acetate on it; also its condensation with benzene (GRASSI-CRISTALDI and MASELLI), A., i, 409.
- Formaldehyde-p-nitrophenylhydrazone** (BAMBERGER), A., i, 666.
- Formaltetrazylhydrazone**, *di*bromo- (THIELE), A., i, 170.
- Formamide**, oxidation of (ECHSNER DE CONINCK), A., i, 509.
- p-Formamidodiphenylamine**, *p*-chloro- (JACOBSON and STRÜBE), A., i, 273.

- Formamidoguanidine**, nitrate (THIELE and MANCHOT), A., i, 167.
- Formamido-ercinol** (HEINRICH), A., i, 173.
- Formanilide**, oxidation of (ECHSNER DE CONINCK), A., i, 509.
p-chloro-, formation of (CHATTAWAY and ORTON), T., 1049; P., 1899, 153.
- Formazyl**, nitro-, conversion of, into diphenyloxytetrazolium hydroxide (BAMBERGER), A., i, 355.
- Formethylanilide** (WHEELER and JOHNSON), A., i, 354, 431.
- Formhydroxamic acid** and its ethers (NEF), A., i, 109.
- Formic acetic anhydride** (BÉHAL), A., i, 734.
- Formic acid**, surface tension of, aqueous solutions of (FORCH), A., ii, 641.
 diffusion velocity and association of (HÜFNER), A., ii, 9.
 influence of, on formation of azo-compounds (GOLDSCHMIDT and BÜCKLE), A., ii, 276.
 behaviour of, towards cyclic ketones (KLAGES), A., i, 624.
 presence of, in plants and production from cane sugar (LIEBEN), A., ii, 45.
 estimation of small quantities of (NICLOUX), A., ii, 253.
 estimation of, in presence of acetic acid (LEYS), A., ii, 132.
 separation of acetic, propionic, and butyric acids from (HAEBERLAND), A., ii, 531.
 separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Formic acid**, isomorphous calcium, barium, strontium, and lead salts of (PLATHAN), A., i, 253.
 potassium salt, boiling point of solutions of, in alcohol (KRAFFT), A., ii, 471.
 sodium salt, solubility of benzoic acid in solutions of (NOYES and CHAPIN), A., ii, 274.
 reaction between silver acetate and (NOYES and COTTLE), A., ii, 205.
 zinc salt, dissociation of solutions of (CALAME), A., ii, 145.
 amyllic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
 action of, on ethylic sodiocyanacetate (BOLLEMONT), A., i, 736.
 orthethylic and orthomethylic salts, action of, on amyllic cyanacetate in presence of acetic anhydride (BOLLEMONT), A., i, 736.
 methylic salt, boiling point and melting point of (LADENBURG and KRÜGEL), A., ii, 545.
- Formic acid**, cyano-, ethylic salt, condensation of, with ethylic sodiomalonate (RUHEMANN and CUNNINGTON), T., 786; P., 1899, 169.
- Formobenzyl-*m*- and -*p*-nitranilides**, and -*anisidide*, *p*-nitro- (PAAL and BENKER), A., i, 587.
- Formoguanamine**, identity of, with diaminiocyanuric hydride (DIELS), A., i, 558.
- β*-Formo-*p*-nitrophenylhydrazide** (HYDE), A., i, 688.
- Formophenylhydrazide**, preparation of (LEIGHTON), A., i, 50.
- Formose**, preparation of, by means of amorphous lead hydroxide (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 850.
- Formylcyanacetic acid**, amyllic salt, and its sodium, barium, and silver derivatives (BOLLEMONT), A., i, 736.
- Formylphenylnitrogen chloride** (*formylchloraminobenzene*), and *p*-chloro-, and 2:4-dichloro- (CHATTAWAY and ORTON), T., 1049; P., 1899, 153.
- Formyl-*m*-xylidide** (BUSCH), A., i, 496.
- Forsterite** from Inverness-shire (CLOUGH and POLLARD), A., ii, 667.
- Freezing point**, determination of (SHUKOFF), A., ii, 588.
 of dilute solutions of sodium mellitate (TAYLOR), A., ii, 7.
 of mixtures of acetic acid and water (DE COPPET), A., ii, 546.
 of mixtures of acetone and water, containing salicylic acid, phenol, *p*-nitrophenol, quinol, or ether (WADDELL), A., ii, 403.
 of mixtures of dibenzyl and stilbene (GARELLI and CALZOLARI), A., ii, 732.
 of mixtures of naphthalene and chloroacetic acid (CADY), A., ii, 405.
 of mixtures of naphthalene and *β*-naphthol (BRUNI), A., ii, 356.
 of thymol, depression of, by amyllic propionate (SCHALL), A., ii, 640.
 of water, depression of, by dissolved substances (RAOULT), A., ii, 203.
- Friedelin** (ISTRATI and OSTROGOVICH), A., i, 772.
- Fructose**. See Lævulose.
- Fulminic acid**, mercury salt, constitution of (LEY and KISSEL), A., ii, 486.
 as a detonator (ALVISI), A., ii, 647.
- Fumaric acid**, equilibrium between maleic acid and, in presence of ammonia (BANCROFT), A., ii, 411.
 compound of, with sulphuric acid (HOOGWERFF and VAN DORP), A., i, 672.

- Fumaric acid**, magnesium salt, dissociation of, in solution (CALAME), A., ii, 145.
 ethylic salt, action of hypochlorous acid on (HENRY and ASCHMANN), A., i, 258.
 methylic salt, molecular weight of, in methylic succinate (BRUNI and GORNI), A., i, 781.
- Fungi**. See Agricultural chemistry.
- Fungin**, preparation of, from fungi (TANRET), A., ii, 171.
- Fungoses**, preparation and properties of (TANRET), A., ii, 171.
- Funnel**, separating (KAHLBAUM), A., ii, 277; (STOBER), A., ii, 552.
- Furfuraldehyde** (*furfural*), formation of, from starch, dextrin and gums (SESTINI), A., i, 103.
 oxidation of, with hydrogen peroxide (CROSS, BEVAN, and HEIBERG), T., 747; P., 1899, 130.
 condensation of, with 2-acetyl-1-naphthol (KELLER and VON KOSTANECKI), A., i, 525.
 action of, on argon (BERTHELOT), A., ii, 653.
 action of bromine and chlorine on (SIMONIS), A., i, 741.
 condensation of, with malonic acid and aniline (KNOEVENAGEL), A., i, 145.
- Furfuraldime**, hydrochloride of (BUSCH and WOLFF), A., i, 950.
- Furfuran** (*furan*), preparation of (FREUNDLER), A., i, 120.
 conductivity of solutions of potassium chloride and iodide, and of sodium bromide and iodide in (EULER), A., ii, 462.
 derivatives from benzoin and phenols (JAPP and MELDRUM), T., 1035; P., 1899, 167.
- Furfuroids** in sugar-beet (STOKLASA), A., ii, 792.
- α -Furfurylbutanone** (HARRIES and KAISER), A., i, 578.
- Furfurylcarbinol** (*furfurylic alcohol*), physical constants of (ANDRÉ), A., i, 578.
- β -Furfuryl- α -dimethylenelactic acid**, ethylic salt (DAIN), A., i, 421.
- Furfurylhydroresorcinol**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- 2-Furfurylideneaceto-1-naphthol** and its acetyl derivative (KELLER and VON KOSTANECKI), A., i, 525.
- Furfurylideneacetone**, action of hydrochloric acid on (KEHRER and IGLER), A., i, 568.
 reduction of (HARRIES and KAISER), A., i, 578.
- Furfurylideneacetophenone**, action of hydrogen chloride on (KEHRER and IGLER), A., i, 569.
- Furfurylidenediacetoacetic acid**, ethylic salt (KNOEVENAGEL and WEDEMEYER), A., i, 215.
- Furfurylidenemalonic acid**, ethylic salt (KNOEVENAGEL and GIESE), A., i, 117.
- 3-Furfuryl-1-methyl-5-cyclohexenone** and its oxime (KNOEVENAGEL and WEDEMEYER), A., i, 215.
- 3-Furfuryl-1-methyl-5-cyclohexenone-carboxylic acid**, ethylic salt (KNOEVENAGEL and WEDEMEYER), A., i, 215.

G.

- Gabbro**, amphibole-, from Sierra Nevada, U.S.A. (TURNER and others), A., ii, 498.
- Gahnite** (*kreittonite*) from N. Carolina (HIDDEN and PRATT), A., ii, 300.
- Galactose**, fermentation of (DIENERT), A., ii, 442.
 fermentation of, by yeasts and moulds, in presence of nitrogenous matter (DUBOURG), A., ii, 376.
 oxidation of, by hydrogen peroxide; methylphenylhydrazone (MORRELL and CROFTS), T., 790; P., 1899, 100.
 oxidation of, by sorbose bacterium (BERTRAND), A., ii, 170.
 fate of, after injection into the circulation (PAVY), A., ii, 677.
 detection of (GAWALOWSKI), A., ii, 255.
 estimation of mannose in presence of (BOURQUELOT and HÉRISSEY), A., ii, 817.
- Galanga root**, crystalline constituents of (CIAMICIAN and SILBER), A., i, 537.
- Galbanic acid**, sublimation product of (TSCHIRCH and KNITL), A., i, 714.
- Galbanum resin**, non-conversion of, into galbanic acid (TSCHIRCH and KNITL), A., i, 714.
- Galena** from Servia (RAUŠAR), A., ii, 667, zinciferous, from Utah (MIERS and HARTLEY), A., ii, 432.
 estimation of lead in (MOLDENHAUER), A., ii, 58; (SCHNEIDER), A., ii, 250.
- Galipene**, from oil of Angostura bark (BECKURTS and TROEGER), A., i, 64.
- Gallacetophenone** (*trihydroxyacetophenone*), action of potassium acetate on (PERKIN), T., 443; P., 1899, 65.
 condensation of, with benzaldehyde (RUPE and LEONTÉFF), A., i, 371.

- Gallein**, use of, in alkalimetry (GLASER), A., ii, 573.
- Gallic acid** (3 : 4 : 5-*trihydroxybenzoic acid*), action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
detection of (TODESCHINI), A., ii, 341 ; (GRIGGI), A., ii, 581.
separation from tannin (VIGNON), A., ii, 135.
- Gallotannic acid**, optical activity of (ROSENHEIM and SCHIDROWITZ), P., 1899, 67.
analysis of (HEINEMANN), A., ii, 455.
- Ganglia**, sympathetic, physiological action of extracts of (CLEGHORN), A., ii, 569.
- Garnet** from Mexico (LENK), A., ii, 305.
from the Urals (WOROBÉEFF), A., ii, 671.
pseudomorphous, from the Urals (VON JEREMÉEFF), A., ii, 671.
optical anomalies of (KARNOJITSKY), A., ii, 37.
soda-, artificial (MOROZEWICZ), A., ii, 764.
See also Hessonite.
- Gas**, inflammable, in metalliferous mines (NORDENSTRÖM), A., ii, 370.
natural, from Point Abino, Canada, hydrogen sulphide in (PHILLIPS), A., ii, 35.
- Gas analysis**, absorption of nitric oxide in (DIVERS), T., 82 ; P., 1898, 221.
estimation of sulphur (PHILLIPS), A., ii, 35.
- Gases** evolved on heating minerals, &c., origin of (TRAVERS), A., ii, 769.
of the argon-helium type (BRAUNER), A., ii, 360.
unknown, in the corona (LOCKYER), A., ii, 717.
physical properties of (LEDUC), A., ii, 354.
specific heats of, and mechanical equivalent of heat (LEDUC), A., ii, 725.
heat of solution of (SCHILLER), A., ii, 357.
mixing of, increase of pressure caused by, and compressibility of the mixture (BERTHELOT), A., ii, 466.
osmotic pressure in, determination of (KISTIAKOWSKI), A., ii, 730.
compressed, volatilisation of solids and liquids in (VILLARD), A., ii, 143.
solution of iodine in (BROWN), P., 1898, 244.
solution of, in liquids, invasion and evasion coefficients in (BOHR), A., ii, 641.
velocity of explosion of (CHAPMAN), A., ii, 591.
hydrates of (VILLARD), A., ii, 151.
- Gases**, measurement of (BLEIER), A., ii, 51.
- Gas-generator** (JÄGER), A., ii, 87.
- Gas-oil**, products of destructive distillation of (MÜLLER), A., i, 27.
- Gas-washing apparatus** (FOERSTER), A., ii, 805.
- Gaseous currents**, synchronous apparatus for obtaining (MARBOUTIN and PÉCOUL), A., ii, 517.
- Gaseous reactions**, dynamics of (BODENSTEIN), A., ii, 548.
- Gastric juice**, composition of human (SCHÜLE), A., ii, 40.
detection of hydrochloric acid in (RAIKOW), A., ii, 52.
- Gastro-enteritis**, fat in the liver of infants suffering from (THIEMICH), A., ii, 233.
- Gelatin**, absorption spectrum of (BLYTH), T., 1166 ; P., 1899, 175.
detection of (GNEZDA), A., ii, 715.
detection of, in albumin (BONNEMA), A., ii, 196.
detection of, in chocolate (ONFROY), A., ii, 76.
estimation of, in gums and foods (TRILLAT), A., ii, 196.
- Gelatin-dynamite**, analysis of (SMITH), A., ii, 528.
- Gelsemic acid**, identity of, with β -methyl- α -sculetin ; and reduction product (SCHMIDT), A., i, 72.
- Genistein** and its triacetyl and tetra-bromo-derivatives, dimethyl ether, decomposition products and dyeing properties (PERKIN and NEWBURY), T., 832, P., 1899, 179.
- Genista tinctoria*, colouring matters and dyeing properties of (PERKIN and NEWBURY), T., 830 ; P., 1899, 179.
- Gentian root**, hydrolysis of constituents of (BOURQUELOT and HÉRISSEY), A., i, 93, 840.
- Geocronite** from Sweden (GUILLEMAIN), A., ii, 757.
- Geranial**, identity of, with citral (SEMMLER), A., i, 223.
from lemon-grass oil (STIEHL), A., i, 67.
- Geranic acid**, conversion of, into citronellie acid (TIEMANN), A., i, 190.
- Geraniol** (*lemonol*) from *l*-linalool (STEPHAN), A., i, 68.
in oils of neroli and petit grain (CHARABOT and PILLET), A., i, 620.
in oil of petit grain (PASSY), A., i, 65.
action of alcoholic potash on (TIEMANN), A., i, 184.
behaviour towards formic and acetic acids, phthalic anhydride, and sulphuric acid (STEPHAN), A., i, 920.

- Geraniol**, conversion into terpineol (STEPHAN), A., i, 920.
tetrabromide (FLATAU and LABBÉ), A., i, 409.
iso-Geraniolene tetrabromides, reduction (VON BAEYER and VILLIGER), A., i, 921.
Geranium oil, composition of (SCHIMMEL and Co.), A., i, 299; (FLATAU and LABBÉ), A., i, 534.
Geranylidene-acetone. See ψ -Ionone.
Gerhardtite, formation of (BOURGEOIS), A., ii, 157.
Germanium, discovery of (WINKLER), A., ii, 297.
Germination. See Agricultural chemistry.
Gilsonite. See Uintahite.
Gismondite, vapour pressure of (TAMMANN), A., ii, 8.
Gland, submaxillary, metabolism in during secretion (HENDERSON), A., ii, 774.
Glass resembling moldavite (JOHN), A., ii, 768.
 composition and electrical properties of (GRAY and DOBBIE), A., ii, 541.
 electrical absorption and dispersion of (LÖWE), A., ii, 201.
 heat conductivity of (WINKELMANN), A., ii, 399.
 ordinary and Jena, coefficient of expansion of (LADENBURG and KRÜGEL), A., ii, 467.
 gradual change in volume of (MARCHIS), A., ii, 545.
Glauber salt. See Mirabilite.
Glaucampibolites (ROSENBUCH), A., ii, 601.
Glaucanite from Russia (GLINKA), A., ii, 112.
 action of reagents on (GLINKA), A., ii, 112.
Glaucophane-rocks, origin of (ROSENBUSCH), A., ii, 601.
Globin, reactions of (BANG), A., i, 836.
Globulin, egg-, crystalline, and its hydrochloride (PANORMOFF), A., ii, 654.
 of blood-serum, different varieties of (DE KERCKHOF), A., ii, 231.
Glomelliferin from *Parmelia glomellifera* (ZOPF), A., i, 716.
Gluconasturtiin (GADAMER), A., i, 930.
Gluconic acid, oxidation of; phenylhydrazide (RUFF), A., i, 869.
 oxidation of, by a bacterium (BOUTROUX), A., i, 259.
d-Gluconic acid, calcium salt, oxidation of, by means of hydrogen peroxide (RUFF), A., i, 324.
Glucoproteid from ox-blood (ZANETH), A., i, 180.
Glucosamine (*chitosamine*) (DE BRUYN), A., i, 5.
 free, preparation and decomposition of; pentacetyl derivatives (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 732.
 from ovimucoid (SEEMAN), A., i, 465.
 hydrochloride, α - and β -modifications and their rotatory power (TANRET), A., i, 246.
 chloride, fate of, in the animal body (FABIAN), A., ii, 503.
d-Glucosamine, action of methylalcohol on (SOLLEMA), A., i, 732.
Glucose, commercial, estimation of total carbohydrate in (ROLFE and FAXON), A., ii, 188.
d-Glucose. See Dextrose.
Glucoside, presence of a, in cotton flowers, and dyeing properties of (PERKIN), T., 825; P., 1899, 161.
 synthetical preparation of (RYAN), T., 1054; P., 1899, 196.
 yielding caffeine and theobromine on decomposition (SCHWEITZER), A., i, 300.
 action of moulds on (PURIEWITSCH), A., ii, 683.
 in vine-leaves, influence of, on yeasts in the must (JACQUEMIN), A., ii, 377.
Glucosides. See also:—
 Absinthin.
 Æsculin.
 Agoniadin.
 Amygdalin.
 Arbutin.
 Carvacrylglucoside.
 Cheiranthin.
 Cocainin.
 Coniferin.
 Digitalein.
 Digitaligenin.
 Digitalin.
 Digitonin.
 Digitoxigenin.
 Digitoxin.
 Gluconasturtiin.
 Glucotropæolin.
 Hederin.
 Helicin.
 Hesperidin.
 Kolanin.
 α -Methylglucoside.
 Myrticlorin.
 β -Naphthylglucoside.
 Ouabain.
 Osyritrin.
 Phloridzin.
 Plumieride.
 Plumieric acid.
 Quercitrin.
 Rutin.

Glucosides. See :—

Solanin.

Strophanthin.

o- and *p*-Tolylglucoside.

Vicin.

Violaquercitrin.

Xanthorhamnin.

Glucosines, α - and β - (TANRET), A., i, 246.

Glucotropæolin, from oil of *Tropæolum majus* (GADAMER), A., i, 535, 930.

Glutaconic acid (*propylenedicarboxylic acid*), ethylic salt, action of ethylic formate on (PECHMANN), A., i, 869.

and its sodium derivative; also the action of methylic iodide on it (HENRICH), A., i, 794.

isonitroso-, ethylic salt (HENRICH), A., i, 794.

Glutamic acid, presence of, in yeast extract (WRÓBLEWSKI), A., ii, 170.

d-Glutamic acid, rotatory power of (FISCHER), A., i, 889.

Glutamine, formation of, in plants (SCHULZE), A., ii, 240.

Glutaric acid, formation of (BONE and SPRANKLING), T., 850.

potassium salt, heat of formation of (MASSOL), A., ii, 80.

l-amyllic salt, molecular rotation of (WALDEN), A., ii, 622.

ethylic salt, condensation of, with ethylic phthalate (DIECKMANN), A., i, 914.

Glutaric acid, β -bromo-, and action of soda on (WISLICIENUS), A., i, 736.

Gluten, wheat, proteids of (RITTHAUSEN), A., i, 724; (MORISHIMA), A., i, 466.

Glutolin from blood-serum, and its decomposition (FAUST), A., i, 466.

Glyceraldehyde, from action of water on *dibromopropaldehyde* (DE BRUYN), A., i, 110.

from oxidation of glycerol by hydrogen peroxide in presence of iron (FENTON and JACKSON), T., 4; P., 1898, 240.

action of yeast on admixed dihydroxy-acetone and (EMMERLING), A., ii, 318.

r-Glyceraldehyde, synthesis and properties of (WOHL), A., i, 11.

Glyceric acid ($\alpha\beta$ -*dihydroxypropionic acid*), preparation of (ZINNO), A., i, 13.

copper salt, dissociation of, in solution (CALAME), A., ii, 145.

etheral salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 354.

Glycerides, detection of, in fatty mixtures (COCHENHAUSEN), A., i, 251.

Glycerol (*glycerin*), presence of, in yeast-extract (WRÓBLEWSKI), A., ii, 170.

influence of various conditions on formation of, in alcoholic fermentation (LABORDE), A., ii, 784.

heat conductivity of (AUBEL), A., ii, 354.

molecular depression of vapour pressure of aqueous solutions of (DIETRICH), A., ii, 403.

action of hydrogen peroxide on, in presence, and in absence, of iron (FENTON and JACKSON), T., 4; P., 1898, 240.

action of ozone on (OTTO), A., ii, 282.

oxidation of, by atmospheric oxygen in sunlight in presence of iron (FENTON and JACKSON), T., 10; P., 1898, 240.

oxidation of, with platinum black (EMMERLING), A., ii, 318.

formation of morfosazone and lycerosazone from (LOEW), A., i, 850.

nitration of, with nitrous acid (AUZENAT), A., ii, 132.

nitrate, the heat test for (AUZENAT), A., ii, 132.

diallylic, *disoamylic*, diethylic, dimethylic, and dipropylic ethers of (ZUNINO), A., i, 410.

detection of (GRÜNHUT), A., ii, 253; (GAWALOWSKI), A., ii, 255.

estimation of (RICHARDSON and JAFFÉ), A., ii, 64.

estimation of, in fermented liquids (LABORDE), A., ii, 816.

estimation of, in sweet wines (FABRIS), A., ii, 131.

estimation of arsenic in (BENNETT), A., ii, 519.

estimation of dry substance in (BENZ), A., ii, 816.

Glycerophosphoric acid, velocity of decomposition of (CAVALIER and POUGET), A., i, 660.

Glyceryl chlorhydrin, methylene derivative (VERLEY), A., i, 666.

Glycide, action of ammonia and amines on (KNORR and KNORR), A., i, 411.

Glycidic acids, formation of, from oleic, *isoleic*, and elaidic acids (ALBITZKY), A., i, 863.

Glycine. See Glycocine.

Glycineaminoether, dihydrochloride of, and the action of nitrous acid on it (CURTIUS), A., i, 9.

Glycocholic acid, detection of (VITALI), A., ii, 342; (GNEZDA), A., ii, 715.

- Glycoccine** (*glycocoll, aminoacetic acid*), synthesis of (BOURCET), A., i, 563. preparation of (AUGER), A., i, 667. as a decomposition product of proteids (SPIRO), A., ii, 777. oxidation of (CONINCK), A., i, 509. mercury compound of, constitution of (KIESERITZKY), A., ii, 395; (LEY and KISSEL), A., ii, 485. formation of, in the body (WIENER), A., ii, 164.
- Glycocoll**. See Glycoccine.
- Glycogen**, formation of, in yeast-extract (KAYSER and BOULLANGER), A., ii, 236; (CREMER), A., ii, 606. action of nucleo-proteids on (BOTTAZZI), A., i, 839. of liver, causes of conversion of, into dextrose (NOËL PATON), A., ii, 312. fate of, after injection into the circulation (PAVY), A., ii, 677. in the animal body, influence of inanition on (PFLÜGER), A., ii, 604. influence of experimental jaundice on the formation of (VON REUSZ), A., ii, 168. amount of, in the frog at different seasons (ATHANASIU), A., ii, 438. storage of, in the liver of molluscs (BIEDERMANN and MORITZ), A., ii, 438. estimation of (WEIDENBAUM; PFLÜGER), A., ii, 529; (PFLÜGER and NERKING), A., ii, 819. estimation of, in meat extracts (LEBBIN), A., ii, 256.
- Glycol**. See Ethylenic glycol.
- Glycollamine**, heat of formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- Glycollic acid**, presence of, in sugar-cane and its effects (SHOREY), A., ii, 507. solutions, solid and liquid of, in naphthalene (CADY), A., ii, 405. phenylurethane, and its ethylic salt (LAMBLING), A., i, 52. mercury salt, dissociation and conductivity of (LEY and KISSEL), A., ii, 486. *l*-amylic salt, molecular rotation of (WALDEN), A., ii, 622. ethylic salt, chlorocarbonate, carbamate, and nitrocarbamate of, and its silver and potassium derivatives (THIELE and DENT), A., i, 15.
- Glycollic acid, diamino- (diaminooxalic acid)**, hydrochloride, and the action of methylic alcohol on it (ANSCHÜTZ and STIEPEL), A., i, 572. imino- (*iminooxalic acid*), formation of, and the action of methylic alcohol on it (ANSCHÜTZ and STIEPEL), A., i, 572.
- Glycollic aldehyde**, from oxidation of ethylenic glycol by hydrogen peroxide in presence of iron (FENTON and JACKSON), T., 2; P., 1898, 240. crystalline, and its osazone and cupric reducing power (FENTON and JACKSON), T., 575; P., 1899, 119.
- Glycollonitrile**, heats of combustion, formation, solution and hydrolysis of (BERTHELOT and ANDRÉ), A., ii, 400. action of cuprous chloride on (RABAUT), A., i, 557.
- Glycollonitrilephenylurethane** (LAMBLING), A., i, 52.
- Glycosuria**, causes of pancreatic (TUCKETT), A., ii, 676. phloridzin, source of sugar in (KUMAGAWA and MIURA), A., ii, 776.
- Glycosyl-dihydroxycinnamic acid**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
- Glycuronic acid**, action of *p*-bromophenylhydrazine on (NEUBERG), A., i, 933. conjugation of, with thymol in the body (KATSUYAMA and HATA), A., ii, 117.
- Glycyrrhizin**, detection of (GAWA-LOWSKI), A., ii, 255.
- Glyoxal**, action of ethylenediamine on (KOLDA), A., i, 328.
- Glyoxalbisaminoguanidine**, and its salts (THIELE and DRALLE), A., i, 8.
- Glyoxylic acid**, chloro-, ethylic salt (*ethyloxalic chloride*), condensation of, with diphenyl (ROUSSET), A., i, 292. behaviour of, towards α -ethoxynaphthalene (ROUSSET), A., i, 297. action of, on ethylic sodiomalonate (BOUVEAULT), A., i, 416.
- Gmelinite**, vapour pressure of (TAMMANN), A., ii, 8.
- Gold** from N. Carolina (HIDDEN and PRATT), A., ii, 301. presence of, in sediment from copper refining (HOLLARD), A., ii, 452. colloidal solutions of, coagulation of, by zinc chloride (STARK), A., ii, 644. dissolution of, in electrolytes (MARGULES), A., ii, 200. solubility of, in solutions of alkali cyanides, influence of oxidising agents on (NOELTING and FOREL), A., ii, 755.
- Gold salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.

- Gold salts**, reduction of, by calcium carbide; alloys with calcium (TARUGI), A., ii, 749.
- Gold solutions**, action of antimony trioxide on (HARDING), A., ii, 490.
- electrolysis of; aurous and auric chlorides in electrolytic solutions of (WOHLWILL), A., ii, 105, 106.
- Gold chloride** (*auric chloride*), action of light on solutions of (SONSTADT), P., 1898, 179.
- conductivity of, temperature coefficient of, in alcoholic ether (CATTANEO), A., ii, 355.
- hydrated, electrolysis and constitution of (HITTORF and SALKOWSKI), A., ii, 398.
- influence of, on the reaction between potassium permanganate and hydrochloric acid (WAGNER), A., ii, 275.
- Auri-chloride**, and -bromide of praseodymium (SCHEELE), A., ii, 99.
- Auroazoimide** of sodium (CURTIUS and RISSOM), A., ii, 92.
- telluride from Colorado (HOBBS), A., ii, 493.
- Gold, estimation and separation of**:—
- estimation of (VANINO and SEEMANN), A., ii, 579.
- estimation of, volumetrically (PETERSON), A., ii, 253.
- estimation of, in presence of platinum, palladium, copper, zinc, nickel, or cobalt (KOLLOCK), A., ii, 811.
- estimation of, in telluride ores (FULTON), A., ii, 63.
- separation of platinum and iridium from (VANINO and SEEMANN), A., ii, 579.
- Goldschmidtite** from Colorado (HOBBS), A., ii, 493.
- Gooseberry**. See Agricultural chemistry.
- Goslarite** from Aachen (GRÄFF), A., ii, 303.
- cupriferous, from Kansas (ROGERS), A., ii, 667.
- Gossypetin**, and salts, hexacetyl and monopotassium derivatives, and dyeing properties (PERKIN), T., 825; P., 1899, 161.
- Gossypium herbaceum* flowers, the colouring matter of (PERKIN), T., 441, 825; P., 1899, 66, 161.
- Gossypol**, from cotton seeds (MARCHLEWSKI), A., i, 821.
- Grains of Paradise**, oil of (SCHIMMEL and Co.), A., i, 63.
- Granatic acid** (PICCININI), A., i, 829.
- Granatoline**, oxidation of (PICCININI), A., i, 829.
- Granatonine**, and salts, and nitroso-, and substitution derivatives (PICCININI), A., i, 829.
- Granite**, from British Columbia (GWILLIM and JOHNSON), A., ii, 498.
- from the Riesengebirge (MILCH), A., ii, 112.
- from Sierra Nevada, U.S.A. (TURNER and others), A., ii, 498.
- Granite-laterite** from the Seychelles (BAUER), A., ii, 565.
- Grape cure**, effects of, on human metabolism (LAQUER), A., ii, 773.
- Grapes**, French, progressive development, and changes in the constituents of; nature of the phlobaphen in (GIRARD and LINDET), A., ii, 445.
- detection of malic acid in (GIRARD and LINDET), A., ii, 454.
- estimation of copper and mercury in (VIGNON and BARRILLOT), A., ii, 452.
- Graphite** from Austria (JOHN and EICHELTER), A., ii, 493.
- from Ceylon (DIERSCHER), A., ii, 500.
- from Moravia, minerals associated with (KOVÁŘ), A., ii, 671.
- action of sulphuric acid on (BERTHELOT), A., ii, 286.
- Graphitic acid**, preparation of (STAUDENMAIER), A., ii, 481.
- Grass**. See Agricultural chemistry.
- Guaiacol**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
- picrate (BOUVEAULT), A., i, 264; (BOSCOGRANDE), A., i, 427.
- detection of (FONZES-DIACON), A., ii, 388.
- Guaiacol**, trichloro-, dibromo-, and tetrabromo- (COUSIN), A., i, 200.
- nitro-, dinitro-, and acetate (KOMPPA), A., i, 347.
- Guaiacum tincture**, use of, in alkalimetry (GLASER), A., ii, 573.
- Guaiacylic carbamate**, and phenyl-carbamate (MOREL), A., i, 876, 877.
- carbonate, oxidation of (CAZENEUVE), A., i, 296.
- chlorocarbonate (BARRAL and MOREL), A., i, 747, 802.
- methylic, ethylic, propylic, isobutylic, isoamyllic, benzylic and *p*-tolyllic carbonates (MOREL), A., i, 586, 876.
- Guanazylmethane**, *m*-nitro- (WEDEKIND and BRONSTEIN), A., i, 828.
- Guanidine**, silver derivative of (THIELE), A., i, 7.
- amino-, preparation of, and its hydrogen carbonate (THIELE), A., i, 7.

- Guanidine**, amino-, condensation of, with aliphatic aldehydes and ketones (THIELE and DRALLE), A., i, 7.
 nitroso- (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 686.
- Guanidinecarboxylazide**, hydrochloride of, and action of alcohol on (THIELE and UHLFELDER), A., i, 119.
- Guanidineglyoxylic acid**, amino- (THIELE and DRALLE), A., i, 7.
- Guanidinepyruvic acid**, amino-, and salts (WEDEKIND and BRONSTEIN), A., i, 828.
- Guano**. See Agricultural chemistry.
- Guanylic acid**, its osazone and decomposition products (BANG), A., i, 179.
- Guejarite**, artificial (SOMMERLAD), A., ii, 216.
- Guitermanite**, artificial (SOMMERLAD), A., ii, 218.
- Gum**, from opoponax (TSCHIRCH and KNITTL), A., i, 714.
 thickness of layers of, required to protect wax from the action of carbon disulphide (MÜLLER-ERZBACH), A., ii, 412.
 formation of furfuraldehyde from (SESTINI), A., i, 103.
 detection of, in albumin (BONNEMA), A., ii, 196.
 estimation of gelatin in (TRILLAT), A., ii, 196.
- Gun-cotton**, non-explosive decomposition, and determination of the stability of (HOITSEMA), A., i, 243.
- Gyalolechia aurella*, stictaurin from (ZOFF), A., i, 716.
- Gyrophora polyphylla*, constituents of (HESSE), A., i, 382.
- Gyrophoric acid**, presence of, in *Umbilicaria pustulata*, *Blastenia arenaria* var. *teich* (?), and decomposition product (HESSE), A., i, 382.
- "**Gytje**" (*mud*) from Sandefjord, Norway (BÖDTKER), A., ii, 39.

H.

- Hadromal** (CZAPEK), A., i, 560.
- Hæmatein**, mono-sodium, and -potassium derivatives of (PERKIN), T., 443; P., 1899, 66.
- Hæmatic acid**, dibasic-, and its identity with biliverdin acid (KÜSTER), A., i, 468.
- Hæmatic acid**, tribasic-, anhydride of, and reduction product (KÜSTER), A., i, 468.
- Hæmatin** from blood of different animals (CAZENEUVE and BRETEAU), A., ii, 440.

- Hæmatin**, formation of, from hæmoglobin by certain bacteria (HUGOUNENQ and DOYON), A., i, 377.
 relation of, to bilirubin (KÜSTER), A., i, 314.
- Hæmatins**, oxidation of, by water (CAZENEUVE and BRETEAU), A., i, 840.
- Hæmatoporphyrinuria**, description of a case of (NEBELTHAU), A., ii, 568.
- Hæmatoxylin**, constitution of (HERZIG), A., i, 821.
 oxidation products of, and its constitution (GILBODY and PERKIN), P., 1899, 28; P., 1899, 76.
 use of, in alkalimetry (GLASER), A., ii, 573.
- Hæmoglobin**, constitution of (LAWROFF), A., ii, 231; (PRÜSCHER), A., i, 653.
 amount of, in human blood at different ages (SCHWINGE), A., ii, 166.
 influence of zinc and copper salts on the formation of (WOLF), A., ii, 231.
 derivatives, absorption spectra of (SCHUNCK), A., ii, 540.
 action of certain bacteria on, to form hæmatin (HUGOUNENQ and DOYON), A., ii, 377.
 action of hydrogen sulphide on, and its sulpho-derivative (HARNACK), A., i, 467.
 fate of, in the organism (SCHÜRIG), A., ii, 167.
- Carboxyhæmoglobin**, action of hydrogen sulphide on (SALKOWSKI), A., i, 784.
- Oxyhæmoglobin**, action of nucleoproteids on (BOTTAZZI), A., i, 839.
- Halogens**, detection of, in organic substances (RAIKOW), A., ii, 52.
- Hancornia speciosa*, caoutchouc from (LINDET), A., ii, 508.
- "**Hardness**," softening agent required for, in water (VIGNON and MEUNIER; GEORGES and FELICIANI), A., ii, 453.
- Hardystonite**, from New Jersey (WOLFF), A., ii, 435.
- Haricot**. See Agricultural chemistry.
- Hatherlitë**, from the Transvaal (HENDERSON), A., ii, 111.
- Häüynite**, artificial (MOROZEWICZ), A., ii, 764.
- Hay**. See Agricultural chemistry.
- Heart**, influence of inorganic salts on the (HOWELL), A., ii, 114.
 influence of serum and various solutions on the (GREENE), A., ii, 114.
 action of suprarenal extract on the (WALLACE and MOGG), A., ii, 310.
 action of various tissue extracts on the (CLEGHORN), A., ii, 310.
 frog's, effect of various solutions on the activity of the (WALDEN), A., ii, 781.

- Heat** of combustion, evaporation, fusion, &c. See Thermochemistry.
- Heating** sealed tubes at a constant temperature, apparatus for (SUDBOROUGH), A., ii, 552.
- Heat-rigor** of muscle (VERNON), A., ii, 567.
- Heather**, dyeing and tanning properties of, and presence of quercetin in (PERKIN and NEWBURY), T., 837; P., 1899, 179.
- Hederidin** (HOUDAS), A., i, 772.
- Hederin**, and its hydrolytic products (HOUDAS), A., i, 772.
- physiological action of (JOANIN), A., ii, 605.
- Hederose** (HOUDAS), A., i, 773.
- Helicin**, action of moulds on (PURIEWITSCH), A., ii, 683.
- Helium** in a cerium mineral and coal, from Caucasus (TSCHERNIK), A., ii, 669.
- in fergusonite (RAMSAY and TRAVERS), A., ii, 35.
- in thalénite (BENEDICKS), A., ii, 765.
- nature of (BRAUNER), A., ii, 360.
- place of, in periodic system (CROOKES), A., ii, 552; (HOWE), A., ii, 740.
- preparation and refraction of (RAMSAY and TRAVERS), A., ii, 746.
- spectrum of (LOCKYER), A., ii, 4.
- spectrum of, in high vacua obtained by freezing air (DEWAR), A., ii, 741.
- fractional diffusion of (RAMSAY and TRAVERS), A., ii, 22.
- Helix pomatia*, agglutinating action of the albuminous gland of (CAMUS), A., ii, 779.
- Hellebore**, presence of an oxydase in, and composition of ash (VADAM), A., ii, 683.
- Hemimellitic acid** and α -**Hemimellithylic acid**, from isogeraniolene (VON BAEYER and VILLIGER), A., i, 922.
- Hemipeptone**, hydrolysis of, to form pigment (CHITTENDEN and ALBRO), A., i, 468.
- Hemipinic acids**, from corydaline (DOBBIE and LAUDER), T., 676; P., 1899, 129.
- Metahemipinic acid** (*o*-**Dimethoxybenzoic acid**) (DOBBIE and LAUDER), T., 678; P., 1899, 129.
- Undecane**. See Undecane.
- Heptadecylcarbamie acid**, methylic salt (JEFFREYS), A., i, 731.
- Heptamethylene**. See *cyclo*-Heptane.
- Heptamethylenediamine**, action of nitrosyl chloride on (SOLONINA), A., i, 561.
- Heptamethylenic chloride**. See Heptane, *dichloro*-.
- n*-Heptane**, action of chlorosulphonic acid on (YOUNG), T., 173.
- action of sulphuric acid on (WORSTALL), A., i, 19.
- action of sulphur chloride on, in presence of aluminium-mercury couple (COHEN and SKIRROW), T., 893; P., 1899, 183.
- n*-Heptane**, *tetrabromo*- (COHEN and DAKIN), T., 896; P., 1899, 184.
- dichloro*- (*heptamethylenic chloride*), formation of; also its diphenoxyderivative (SOLONINA), A., i, 561.
- nitro*- and *bromonitro*- (WORSTALL), A., i, 399.
- action of sulphuric acid on (WORSTALL), A., i, 787.
- Heptane**, (γ -*ethylpentane*), $\alpha\gamma$ -*dibromo*-, and action of potash on (IPATIEFF), A., i, 658.
- cyclo*-**Heptane** (*heptamethylene*), action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.
- cyclo*-**Heptanecarboxylic acid** (WILLSTÄTTER), A., i, 26.
- Heptanedicarboxylic acids**. See :—
- iso*-Amylsuccinic acid.
- β -*iso*-Butylglutaric acid.
- n*-Heptane-sulphonic acid** and *-disulphonic acid* (WORSTALL), A., i, 19.
- nitro*- (WORSTALL), A., i, 787.
- Heptanetetracarboxylic acid**. See *iso*-Amylidenebismalonie acid.
- δ - and γ -*cyclo*-**Heptatrienecarboxylic acids**, specific conductivities of (WILLSTÄTTER), A., i, 651.
- Δ' -*cyclo*-**Heptenecarboxylic acid**, identity of, with Δ' -ethylcyclopentanecarboxylic acid (WILLSTÄTTER), A., i, 26.
- comparison of, with suberenecarboxylic acid (BUCHNER), A., i, 423.
- specific conductivity of (WILLSTÄTTER), A., i, 651.
- Heptenoic acid** (*methylisobutylideneacetic acid*), and its calcium and silver salts, and dibromide (KIETREIBER), A., i, 331.
- Heptenoic acid** (*2-methyl-2-hexenoic acid*), and its ethylic salt (BARBIER and LESER), A., i, 111, 414.
- Heptinene** (β -*diethylallene*), and the action of hydrogen bromide on it (IPATIEFF), A., i, 658.
- iso*-**Heptodilactone** (FITTIG and PETKOW), A., i, 335.
- n*-Heptolic acid** (*ananthoic acid*), amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
- amide of, preparation of (ASCHAN), A., i, 14.

- n*-Heptoic acid** (*ænanthoic acid*), sodium or potassium salt, boiling point of solutions of, in alcohol (KRAFFT), A., ii, 471.
- Heptoic acid** (*isoamylacetic acid*), α -bromo-, ethylic salt, and condensation with ethylic sodiocyanacetate (LAWRENCE), P., 1899, 163.
- Heptoic acid** (*β -isopropylbutyric acid*), γ -cyano-, ethylic salt (HOWLES and THORPE), P., 1899, 104.
- iso*-Heptoic chloride** (*isoamylacetic chloride*), action of zinc ethyl on (PONZIO and DE GASPARI), A., i, 253.
- Heptophenylhydrazide**, preparation of (LEIGHTON), A., i, 51.
- Heptylic alcohol**, heat of combustion of (ZOUBOFF), A., ii, 589.
- Heptylic bromide** (COHEN and DAKIN), T., 894; P., 1899, 184.
- Heptylamine**, action of nitrosyl chloride on (SOLONINA), A., i, 473.
- Heptylene** (*γ -ethylpentylene*), α -bromo- (IPATIEFF), A., i, 658.
- Heptylenedicarboxylic acids**. See:—
Butylaticonic acid.
Butyleitraconic acid.
Butylitaconic acid.
Butylmesaconic acid.
- Heptylidenebismalonic acid** (*ænanthylidenebismalonic acid*, *nonaneletracarboxylic acid*), ethylic salt (KNOEVENAGEL), A., i, 116.
- Heptylidene cyanhydrin**. See α -Hydroxyoctonitrile.
- Heptylsuccinic acid** (*nonamedicarboxylic acid*), from reduction of hexylitaconic acid and its isomerides (FITTIG and HOFFKEN), A., i, 339.
- Heracleum sphondylium***, oil of (SCHIMMEL and Co.), A., i, 923.
- Heroine**. See Diacetoxymorphine.
- Hesperidin**, action of moulds on (PURIEWITSCH), A., ii, 683.
- Hesperitin**, compounds of, with sodium and potassium acetate (PERKIN), T., 444.
- Hessonite** from the Urals (KARNOJITSKY), A., ii, 37; (WOROBEEFF), A., ii, 671.
- Heteromorphite** from Westphalia (SPENCER and PRIOR), A., ii, 431; (GUILLEMAIN), A., ii, 757.
- Heteroxanthine** (*7-methylxanthine*), formation from epiguanine (*7-methylguanine*) (KRÜGER and SALOMON), A., i, 306.
- Heulandite** from Mexico (LENK), A., ii, 306.
- Hexa-acetyldigallacyl** (VON GEORGIEVICS), A., i, 803.
- Hexa-acetylgossypetin** (PERKIN), T., 827; P., 1899, 161.
- Hexa-allyldiarsonium salts** (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Hexabenzoyloxy- $\beta\beta'$ -dipyridyl** (SELL and JACKSON), T., 517; P., 1899, 98.
- Hexabenzylldiarsonium and Hexa-*n*-butylldiarsonium salts** (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Hexadecane**, boiling point of, in a vacuum (KRAFFT), A., ii, 465.
- Hexadecylamine hydrochloride**, melting point of, and crystallisation of solutions of (KRAFFT), A., ii, 472.
- cyclo*-Hexadiene** (*hexaterpene*), isomeric forms of (MARKOWNIKOFF), A., i, 26.
- cyclo*-Hexadienecarboxylic acid** (*dihydrobenzoic acid*), presence of a, in Peru balsam (THOMS), A., i, 715.
- cyclo*-Hexadiene-1:4-dicarboxylic acid** (*dihydroterephthalic acid*), dichloro-, aniline salt (GRAEBE and BUENZOD), A., i, 763.
- Hexa-ethylldiarsonium salts** (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Hexahydrotoluic acids**. See Methyl-*cyclohexanecarboxylic acids*.
- Hexahydroxy- $\beta\beta'$ -dipyridyl**, and benzoyl derivative (SELL and JACKSON), T., 517; P., 1899, 98.
- Hexahydroxylic acid**. See Dimethyl-*cyclohexanecarboxylic acid*.
- Hexaldoses**, action of hydrogen bromide on (FENTON and GOSTLING), T., 423; P., 1899, 57.
- Hexamethyltetraaminotriphenylmethane** (MÖHLAU and KLOPPER), A., i, 914.
- Hexamethylldiarsonium salts** (PARTHEIL, AMORT, and GRONOVER), A., i, 474.
- Hexamethylenamine**. See Hexamethylenetetramine.
- Hexamethylene**. See *cyclo*-Hexane.
- Hexamethylene 1:5-disulphide and -disulphone** (AUTENRIETH and WOLFF), A., i, 581.
- Hexamethylenediamine**, action of aqua regia on salts of (SOLONINA), A., i, 663.
action of nitrosyl chloride on (SOLONINA), A., i, 561.
- Hexamethylene ketone**. See *cyclo*-Hexanone.
- Hexamethylenetetramine** (*hexamethylenamine*, *urotropine*), constitution of; also its reduction (GRASSI-CRISTALDI and MOTTA), A., i, 473.
thermochemical data and stability of (DELÉPINE), A., i, 187.
and its hydrobromide, hydriodide, arsenate, and various compounds with metallic salts (GRÜTZNER), A., i, 6.
action of ethylic chloracetate on (BOURCET), A., i, 563.

Hexamethylenetetramine (*hexamethylenamine*, *urotropine*), action of potassium chloracetate on (AUGER), A., i, 667.

Hexamethyl-*p*-leucaniline, formation of (WEINMANN), A., i, 204.

Hexamethylphloroglucinol, preparation of (REISCH), A., i, 803.

Hexanaphthene. See *cyclo*-Hexane.

Hexanaphthenecarboxylic acid, identity of, with 1-methylcyclopentane-2-carboxylic acid (MARKOWNIKOFF), A., i, 800.

Hexanaphthene ketone. See *cyclo*-Hexanone.

Hexanaphthenol. See *cyclo*-Hexanol.

Hexanaphthylene. See *cyclo*-Hexene.

***n*-Hexane**, physical constants of (YOUNG and FORTEY), T., 880.

viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.

action of chlorosulphonic acid on (YOUNG), T., 173.

action of sulphuric acid on (WORSTALL), A., i, 18.

decomposition of, by aluminium chloride (FRIEDEL and GORGEU), A., i, 181.

***n*-Hexane**, nitro- and dinitro- (WORSTALL), A., i, 399.

***iso*-Hexane** (*dimethylpropylmethane*), dibromo- (*trimethyltrimethylenic dibromide*), action of potash on (IPATIEFF), A., i, 658.

trinitro- (MARKOWNIKOFF), A., i, 553.

action of chlorosulphonic acid on (YOUNG), T., 173.

Hexane (? *iso*-Hexane), synthesis of, by action of isobutylic iodide on zinc ethyl iodide (SIMONOWITSCH), A., i, 871.

Hexane (γ -methylpentane) $\alpha\gamma$ -dibromo-, and action of potash on (IPATIEFF), A., i, 658.

Hexane (*trimethylethylmethane*) from Caucasian naphtha; also its nitro-derivative and its reduction (MARKOWNIKOFF), A., i, 554.

action of nitric acid on (MARKOWNIKOFF), A., i, 553.

***cyclo*-Hexane** (*hexamethylene*, *hexanaphthene*), from Galician petroleum, action of chlorosulphonic acid on (YOUNG), T., 174.

heat of combustion of (ZOUBOFF), A., ii, 589.

vapour pressures, specific volumes and critical constants of (YOUNG and FORTEY), T., 873; P., 1899, 182.

action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.

***cyclo*-Hexane**, amino-, and salts (MARKOWNIKOFF), A., i, 24.

chloro-, dichloro-, iodo-, and nitro- (MARKOWNIKOFF), A., i, 22.

nitro-, action of stannous chloride on (KONOWALOFF), A., i, 733.

Hexanedicarboxylic acids. See :—

iso-Butylsuccinic acid.

β -*iso*-Propylglutaric acid.

Trimethylglutaric acid.

***n*-Hexane-sulphonic and -disulphonic acids** (WORSTALL), A., i, 18.

Hexanetetracarboxylic acid. See *iso*-Butylidenebismalonic acid.

Hexanetricarboxylic acids. See :—

iso-Butylethanetricarboxylic acid.

Dimethylbutanetricarboxylic acid.

***cyclo*-Hexanol** (MARKOWNIKOFF), A., i, 24.

***cyclo*-Hexanone** (*hexamethylene ketone*), and its oxime, formation of, from nitro-hexamethylene (MARKOWNIKOFF), A., i, 23; (KONOWALOFF), A., i, 733.

Hexa-propyl- and -isopropyl-diarsonium hydroxide, and salts (PARTHEIL, AMORT, and GRONOVER), A., i, 474.

Hexaterpene (*cyclohexadiene*), two isomerides of (MARKOWNIKOFF), A., i, 24.

***cyclo*-Hexene**, and its chloro- and dichloro-derivatives (MARKOWNIKOFF), A., i, 23, 24.

Hexenoic acids (*n*- and α -*isopropylacrylic acids*), salts and oxidation (SEMENOFF), A., i, 866.

Hexenoic acid (β -*isopropylacrylic acid*, γ -*dimethylcrotonic acid*), and its oxidation; also its ethylic and silver salts (CROSSLEY and LE SUEUR), T., 168; P., 1898, 219.

ethylic salt, and condensation with ethylic sodiocyanacetate (HOWLES and THORPE), P., 1899, 104.

nitrile of (HENRY), A., i, 257.

Hexenoic acid (*hydrosorbic acid*), bromo- (FITTIG and GLASER), A., i, 334.

***cyclo*-Hexenylglycol** (MARKOWNIKOFF), A., i, 24.

***n*-Hexoic acid** (*caproic acid*), physical constants of (SCHEIL), A., i, 668.

separation of, from other fatty acids (HOLZMANN), A., ii, 68.

amylic salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.

rosaniline salt, influence of, on the boiling point of water (KRAFFT), A., ii, 473.

***n*-Hexoic acid**, α -amino-. See Leucine.

ϵ -amino-, and its hydrobromide, lactam, and aurichloride (GABRIEL and MAASS), A., i, 595.

- iso-Hexoic acid** (*isobutylacetic acid*), preparation and bromination of (CROSSLEY and LE SUEUR), T., 167; P., 1898, 219.
 action of chlorine on (MONTMARTINI), A., i, 330.
 α -bromo-, ethylic salt, action of quinine and of diethylaniline on (CROSSLEY and LE SUEUR), T., 168; P., 1898, 219.
- Hexoic acid** (*aa-dimethylbutyric acid*), γ -amino-, ethylic salt, and its hydrochloride, hydrobromide, and sulphate (BLAISE), A., i, 480.
- Hexoic acid** (*$\beta\beta$ -dimethylbutyric acid*), γ -cyano-, ethylic salt, from decomposition of ethylic hydrogen α -cyano- $\beta\beta$ -dimethylglutarate (PERKIN and THORPE), T., 53.
- Hexon bases** in relation to albumin (KOSSEL), A., i, 833.
- n-Hexonitrile** (*capronitrile*), specific heat and heat of vaporisation of (LUGNIN), A., ii, 354.
- iso-Hexonitrile** (*isobutylacetoneitrile isocapronitrile*), α -chloro- (HENRY), A., i, 256.
- Hexonitrile** (*dimethylethylcarbonylcyanide*), isonitroso-, reduction of (TRASCIATTI), A., i, 855.
- iso-Hexophenylhydrazide**, preparation of (LEIGHTON), A., i, 51.
- Hexose**, formation of, from egg-albumin; also its osazone (MAYER), A., i, 787.
- Hexoses**, estimation of (WARNIER), A., ii, 339.
- Hexylisoacetic acid**, and its reduction (FITTIG and STUBER), A., i, 417.
- Hexylamine**, from reduction of nitro-trimethylethylmethane (MARKOWNIKOFF), A., i, 554.
- Hexylitaconic acid**, and the action of bromine on it (FITTIG and STUBER), A., i, 417.
- Hexylitraconic acid**, and its anhydride also its conversion into hexylitaconic acid, and the action of bromine on it (FITTIG and HOFFEKEN), A., i, 339.
- n-Hexylene**, heat of combustion of (ZOUBOFF), A., ii, 539.
- Hexylene** (*tetramethylethylene*) (SOLOMINA), A., i, 681.
 action of nitric anhydride and peroxide on (DEMJEANOFF), A., i, 845.
 bromo- (SOLOMINA), A., i, 681.
- Hexylenedicarboxylic acids**. See:—
 Dimethylallylmalonic acid.
 Propylitraconic acid.
 Propylitaconic acid.
 Propylmesaconic acid.
 iso-Propylitraconic acid.
 iso-Propylitaconic acid.
- Hexylenedicarboxylic acid**. See:—
 iso-Propylmesaconic acid.
- Hexylenic dibromide** (*tetramethylethylene dibromide*), action of alcoholic potash on (KONDAKOFF), A., i, 556.
 nitrate, and its reduction (DEMJEANOFF), A., i, 845.
 oxide, action of nitric anhydride on (DEMJEANOFF), A., i, 845.
- β -Hexylglutaric acid** (*nonanedicarboxylic acid*) (KNOEVENAGEL), A., i, 116.
- Hexylic nitrate**, nitro- and nitroso- (DEMJEANOFF), A., i, 845.
- Hexylitaconic acid**, and salts; also its conversion into hexylparaconic acid (FITTIG and HOFFEKEN), A., i, 339.
 dibromide of (FITTIG and STUBER), A., i, 418.
- Hexylmesaconic acid**, and salts; also its conversion into hexylitaconic acid (FITTIG and HOFFEKEN), A., i, 339.
- Hexylparaconic acid**, ethylic salt, and the action of sodium ethoxide on it (FITTIG and HOFFEKEN), A., i, 339.
- Hexylisoparaconic acid**, and its bromoderivative (FITTIG and STUBER), A., i, 417.
- Hippuric acid** (*benzamidooacetic acid*), stability of, towards alkalis relative to that of benzoylmethylamide (FISCHER), A., i, 262.
 and potassium salt, solubility of mixtures of (HOITSEMA), A., ii, 10.
 mercury derivative of, constitution of (KISSERITZKY), A., ii, 395.
 maximum production of, in rabbits (PARKER and LUSK), A., ii, 312.
- Histon**, detection of, in sections of animal organs (SAINT-HILAIRE), A., ii, 133.
- Histons**, reactions of (BANG), A., i, 836.
- Holmium** in monazite sands (SCHÜTZENBERGER and BOUDOUARD), A., ii, 367.
 in thalénite (BENEDICKS), A., ii, 765.
 separation of erbium from by the ethylic sulphate method (URBAIN), A., ii, 28.
- Homocamphoronanilic acid** (LAPWORTH and CHAPMAN), T., 999; P., 1899, 160.
- Homocamphoronic acid**, from derivatives of bromocamphorenic acid (LAPWORTH), T., 1137; P., 1899, 203.
 silver, barium, lead, copper salts (LAPWORTH and CHAPMAN), T., 995; P., 1899, 160.
- Homocamphorono-p-tolilic acid** (LAPWORTH and CHAPMAN), T., 999; P., 1899, 160.

- Homocinchonine**, identity of, with cinchonine (SKRAUP), A., i, 961.
- Homogentisic acid**, separation of, from urine (GARROD), A., ii, 314.
detection of, in urine (HUPPERT), A., ii, 706.
- Homonataloin**, and its acetyl and tri- and tetra-benzoyl derivatives (LÉGER), A., i, 821.
- Homophthalic acid**. See *o*-Carboxy-phenylacetic acid.
- Homopiperilenedicarboxylic acid** (PICCININI), A., i, 964.
- Homopiperonylic acid and nitrile** (MOUREU), A., i, 494.
- Honey**, analyses of (HOITSEMA), A., ii, 818.
polarisation of (FRÜHLING), A., ii, 186.
- Hops**, estimation of bitter principles of (LINTNER), A., ii, 264.
valuation of, by chemical methods (RÉMY), A., ii, 796.
- Hop-resins**, estimation of (RÉMY), A., ii, 796.
- Horn**, decomposition products of (COHN), A., i, 315.
- Hornblende**, from Burma (KRENNER), A., ii, 673.
and augite, intergrowth of, from Colorado (EAKINS), A., ii, 564.
from North Carolina (LEWIS), A., ii, 561.
from Philipstad, Sweden (DALY), A., ii, 436.
from Sierra Nevada, U.S.A. (TURNER and others), A., ii, 498.
vanadium in (HILLEBRAND), A., ii, 113.
- Hornfels**, from the Seychelles (BAUER), A., ii, 565.
- Horn meal**. See Agricultural chemistry.
- Horse**. See Agricultural chemistry.
- Horse-hair**, melanins from, and their oxidation products (JONES), A., i, 396.
- Hübl's reagent**, preservation of (BOLLING), A., ii, 822.
- Humic acid** in moorland waters (ACKROYD), T., 200; P., 1899, 2.
production of furfuraldehyde from (SESTINI), A., ii, 121.
- Humic lignite** (BERTRAND), A., ii, 430.
- Humic acid** (BERTRAND), A., ii, 430.
- Humulene**, nitrosochloride, nitrosate, nitrosite, *is*onitrosite, nitrolbenzylamine, and nitrolpiperidine (KREMER, SCHREINER, and JAMES), A., i, 620.
- Humus**. See Agricultural chemistry.
- Huronite**, from Canada (BARLOW), A., ii, 565.
- Hyacinth bulbs**, variation in the reserve materials of (DU SABLON), A., ii, 444.
- Hyalite**, vapour pressure of (TAMMANN), A., ii, 8.
- Hydracetylacetone**, preparation of (CLAISEN), A., i, 667.
- Hydracrylic acid**, nitrile of. See β -Hydroxypropionitrile.
- Hydralcellulose**, and action of soda on; phenylhydrazone (BUMCKE and WOLFENSTEIN), A., i, 853.
- Hydrargillite**, in laterite (BAUER), A., ii, 565.
- Hydrastine**, in rhizome and fluid extract of *Hydrastis* (LINDE), A., i, 395.
action of bromacetophenone on (SCHMIDT), A., i, 5.
estimation of (GORDIN and PRESCOTT), A., ii, 826.
- Hydrastis*, composition of precipitate from fluid extract of (LINDE), A., i, 395.
- Hydrastis canadensis*, estimation of berberine and hydrastine in (GORDIN and PRESCOTT), A., ii, 826.
- Hydrates**, constitution of (BUSNIKOFF), A., ii, 362.
- Hydrotropic acid**. See α -Phenylpropionic acid.
- Hydrazides**, *sec*.-acid, action of dehydrating agents, alcoholic ammonia and phosphorous pentasulphide on (STOLLÉ), A., i, 456.
- Hydrazidicarbonanilide**, *tetrabromo*-derivative (CURTIUS and BURKHARDT), A., i, 137.
- Hydrazine**, action of acetic anhydride on (STOLLÉ), A., i, 413.
action of sodium, phosphorus, phosgene, sulphur dioxide, carbon dioxide, or nitrous oxide on (DE BRUYN), A., ii, 745.
compound of, with cupric nitrate (HOFMANN and MARBURG), A., i, 488.
estimation of (RIMINI), A., ii, 576.
- Hydrazine azoimide** (CURTIUS and RISOM), A., ii, 91.
dithionate, *amidosulphonates*, and *ammonium hypophosphate* (SABANÉEFF), A., ii, 364.
hydrate, behaviour of, towards bromanilic acid (DESCOMPS), A., i, 690.
reaction of, with phenols (HOFFMANN), A., i, 221.
hydrochloride, compound of, with mercuric chloride (HOFMANN and MARBURG), A., i, 488.
nitrate, and acid nitrate (SABANÉEFF and DENGIN), A., ii, 365.
pyrosulphite (SABANÉEFF and SPERANSKY), A., ii, 364.

- Hydrazine sulphate**, action of benzoyl chloride, acetic anhydride, and sodium formate on (PELLIZZARI), A., i, 858.
 action of mercuric chloride on, and the action of acetic anhydride on the product (HOFMANN and MARBURG), A., i, 487.
- o*-Hydrazoanisole** (STARKE), A., i, 589.
- Hydrazobenzene**, cryoscopic behaviour of, in azobenzene solution (BRUNI and GORNI), A., ii, 731.
 depression of freezing point of dibenzyl by (GARELLI and CALZOLARI), A., ii, 732.
- Hydrazobenzene**, *p*-bromo-, transformation of (JACOBSON and GROSSE), A., i, 273.
p-chloro-, transformation of (JACOBSON and STRÜBE), A., i, 273.
p-iodo-, transformation of (JACOBSON, FERTSCH, and HEUBACH), A., i, 274.
- Hydrazobenzene-*p*-carboxylic acid**, transformation of, and methylic salt (JACOBSON and STEINBRENN), A., i, 276.
- Hydrazo-compounds** substituted in the para-position, transformation of (JACOBSON), A., i, 272.
- Hydrazoic acid** (*azoimide*), strychnine, brucine, quinine, and codeine salts of (POMMERHNE), A., i, 88.
 See also *Azoimide*.
- Hydrazophthalaldehydic acid**, ethiodide of (PAUL), A., i, 778.
- Hydrazopropionic acid**, ethylic and methylic salts (THIELE and BAILEY), A., i, 170.
- o*-Hydrazotoluene**, *m*-diamino- (ELBS and SCHWARZ), A., i, 271.
- Hydrazotriazole hydrochloride** (THIELE and MANCHOT), A., i, 168.
- α -Hydrindamine**, two isomeric bromocamphorsulphonates of, and *cis*- π -camphanates (KIPPING), P., 1899, 172.
- Hydrindeneglycol**, formation of, and monomethylic ether (HEUSLER and SCHIEFFER), A., i, 365.
- β -Hydrindone**, formation of, and *di*-is-nitroso-, and 4-nitro-derivatives (HEUSLER and SCHIEFFER), A., i, 365.
- Hydroanemonin**, Hanriot's, composition of (MEYER), A., i, 930.
- Hydrobenzamide**, chlorination product of (DELÉPINE), A., i, 694.
 oxidation of, with chromic acid (OECHSNERDE CONINCK and COMBE), A., i, 347.
- Hydrocarbon**, C_3H_4 , from decomposition of barium pyromucate, and its dibromide and tetrabromide (FREUNDLER), A., i, 98.
- Hydrocarbon**, C_8H_{14} , from *isolauronic* acid (BLANC), A., i, 630.
 $C_{10}H_{14}$, from dihydrocarvyldiamine (HARRIES and MAYRHOFER), A., i, 625.
 $C_{10}H_{16}$, from oil of thyme (LABBÉ), A., i, 621.
 $C_{10}H_{18}$, from action of sodium on bromamylene (WASSILÉF), A., i, 786.
 $C_{14}H_{18}$, from phenyldihydroisolauronic chloride (BLANC), A., i, 927.
 $C_{16}H_{18}$, and its picrate (OEHLER), A., i, 817.
 $C_{17}H_{22}$, from benzylidihydrocarvol and phosphoric anhydride (WALLACH), A., i, 532.
 $C_{17}H_{22}$, from benzylpulegol and phosphoric anhydride (WALLACH), A., i, 532.
 $C_{20}H_{36}$, from menthol and sulphuric acid (TOLLOCZKO), A., i, 440.
- Hydrocarbons**, electrolytic formation of (SCHALL), A., i, 364.
 and their halogen substitution products, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
 picrates of, cryoscopic behaviour of (BRUNI and ČARPENÉ), A., ii, 8.
 saturated, action of nitric acid on (KONOWALOFF), A., i, 844.
 action of nitric and nitrosulphuric acids on (MARKOWNIKOFF), A., i, 553.
- Hydrocarbons**. See also :—
 Acetylene.
 Allylbenzene.
 Amylbenzene.
 Amylene.
 Anthracene.
 Benzene.
 Benzylphenylethylene.
 Biscarvene.
 Butane.
 Butinene.
 Butylbenzene.
 Butylene.
 Butyltoluene.
 Cadinene.
 Camphene.
 Caparrapene.
 Caryophyllene.
 Cymene.
 β -Decanaphthene.
 Decane.
*Di*isamyl (*decane*).
 Dibenzyl.
 Dibenzylmesitylene.
*Di*isobutenyl.
*Di*isobutyl (*octane*).
 Dibutylbenzene.

Hydrocarbons. See :—

Dibutylidibenzyl.
 Dicrotonyl (*oclinene*).
 Diisocrotonyl.
 β -Diethylallene.
 Diethylidibenzyl.
 Dihydrophenylnaphthalene.
 Dimethylidibenzyl.
 Dimethylethylbenzene.
 Dimethylethylene (*butylene*).
 Dimethylethylcyclohexane.
 Dimethylhexanaphthene (*dimethyl-*
cyclohexane).
 Dimethylcyclohexane.
 Dimethylnaphthalene.
 Dimethylpentamethylene (*dimethyl-*
cyclopentane).
 Dimethylcyclopentane.
 1 : 1-Dimethylcyclopropane.
 Dipentamethenyl.
 Dipentene.
 Diphenylbutadiene.
 Diphenylmethane.
 1 : 2-Diphenylcyclopentane.
 Ditolyls.
 Divinyl (*butinene*).
 Dotriacontane.
 Ethane.
 Ethylbenzene.
 Ethylcymene.
 Ethylene.
 Fenchene.
 Galipene.
 Heptamethylene (*cycloheptane*).
 Heptane.
cyclo-Heptane.
 Hexadecane.
 Hexamethylene.
 Hexanaphthene (*cyclohexane*).
 Hexane.
cyclo-Hexane.
 Hexaterpene.
cyclo-Hexene.
 Hexylene.
 Isoprene (*pentinene*).
 Limonene.
 Menthene.
 Mesitylene.
 Metastyrene.
 Methane.
 Methyl-diethylbenzene.
 β -Methylethylallene.
 α -Methylethylethylene (*amylene*).
 2-Methyl-4 : 5 : 6-heptatriene.
 2-Methyl-4-heptene-6-ine.
 Methylhexanaphthene (*methylcyclo-*
hexane).
 Methylcyclohexane.
 2-Methyl-3-hexene-5-ine.
 Methylpentamethylene (*methylcyclo-*
pentane).
 Methylcyclopentene.

Hydrocarbons. See :—

Methylisopropylhexahydrofluorene.
 Naphthalene.
 Naphthenes.
 Nonane.
 Octane.
 Octinene.
 Pentamethyldiphenylmethane.
 Pentamethylene (*cyclopentane*).
 Pentane.
cyclo-Pentane.
 Pentene.
 Pentinene.
 Pertusarene.
 Phenanthrene.
 Phenyl-dimethylethylmethane.
 Phenylethane (*ethylbenzene*).
 3 : 1-Phenylmethylcyclohexene.
 Phenylpropylethylene.
 Phenyltolylmethane.
 Pinene.
 Propane.
cyclo-Propane.
iso-Propylisobutenylbenzene.
 Propylene.
iso-Propylethylene (*amylene*).
iso-Propylphenylmethylhexene.
 Santalene.
 Stillbene.
 Styrene.
 Terpinene.
s-Tetramethyldibenzyl.
 Tetramethylethylene (*hexylene*).
 Tetramethylmethane (*pentane*).
 Tetraphenylbenzene.
 Tetraphenylbutane.
 Tetraphenylmethane.
 Tetraphenylcyclopentadiene.
 Tetraphenylcyclopentane.
 Tricycylene.
 Triethylbenzene.
 Trimethylene.
 Trimethylethylene (*amylene*).
 Trimethylethylmethane (*hexane*).
 Trimethylnaphthalene.
 Triphenylmethane.
 Triphenylcyclopentadiene.
 Triphenylcyclopentane.
 Triphenylpropane.
 Undecane.
 Undecylene.

Hydrochloric acid. See under Chlorine.

Hydrocinnamoin and its diacetyl and dibenzoyl derivatives (THIELE), A., i, 616.

Hydrocyanic acid. See under Cyano-

Hydrodigitic acid, molecular weight of (EDINGER), A., i, 377.

Hydrosegonidine, ethylic salts, conversion of, into amide (WILLSTÄTTER and MÜLLER), A., i, 178.

Hydroecgonidineamidé, and conversion into isotropylamine (WILLSTÄTTER and MÜLLER), A., i, 178.

Hydroferrocyanic acid, and potassium salt, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.

Hydrofluoric acid, 2 : 7-dinitro- (MEYER and FRIEDLAND), A., i, 764.

Hydrofurfurancarboxylic acids, transformation of unsaturated α -hydroxy-acids into (FITTIG), A., i, 191.

Hydrogen in atmospheric air (GAUTIER), A., ii, 149; (DEWAR), A., ii, 742.

atomic weight of (DEWAR), P., 1898, 175; (LANDOLT, OSTWALD, and SEUBERT), A., ii, 87; (LEDUC), A., ii, 475, 729.

spectrum of (HUTTON), A., ii, 3; (RICHARDS), A., ii, 266.

colour of flame of, due to selenium (SCHLAGDENHAUFFEN and PAGEL), A., ii, 475.

ionic charges produced in, by Röntgen rays (TOWNSEND), A., ii, 730.

transference number for (MCINTOSH), A., ii, 137; (BANCROFT), A., ii, 398.

solidification of; liquid, specific gravity of, and use of, in production of high vacua; melting and boiling points of (DEWAR), A., ii, 741.

boiling point of (DEWAR), P., 1899, 70; A., ii, 741.

liquid, molecular complexity, density and critical pressure of (VAUBEL), A., ii, 475.

compressibility of mixture of, with oxygen (BERTHELOT and SACERDOTE), A., ii, 404.

viscosity of (BREITENBACH), A., ii, 403.

velocity of diffusion of, through water and through agar jelly (HÜFNER), A., ii, 9.

solubility of, in amylic alcohol (FRIEDEL and GORGEU), A., i, 182.

compressed, solution of bromine in (VILLARD), A., ii, 143.

action of electric glow discharge on mixtures of, with oxygen (MIXTER), A., ii, 267.

explosibility of mixtures of acetylene with (BERTHELOT and VIEILLE), A., ii, 412.

chemical equilibrium between carbon oxides and (BERTHELOT), A., ii, 286.

combination of, with carbon disulphide (BERTHELOT), A., ii, 648.

inflammability of mixtures of, with chlorine (EMICH), A., ii, 12.

action of, on mercury salts (COLSON), A., ii, 485.

Hydrogen, non-explosive combination of, with oxygen (BODENSTEIN), A., ii, 733.

combination of, with oxygen, at different temperatures (HÉLIER), A., ii, 85.

combination of, with oxygen, heat developed in (PLATNER), A., ii, 628.

oxidation of, by chromic acid (REESE), A., ii, 647.

existence of a compound of, with platinum (HEMPITINNE), A., ii, 146.

combination of, with sulphur (KONOW-ALOFF), A., ii, 415.

action of, on sulphuric acid (ADIE), P., 1899, 133.

estimation of, by combustion (DENNIS and HOPKINS), A., ii, 332.

estimation of, in organic substances containing nitrogen (TOWER), A., ii, 694.

estimation of, in presence of methane and nitrogen (JAEGER), A., ii, 526.

Hydrogen salts, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.

Hydrogen chloride. See Chlorine; Hydrochloric acid.

nitride. See Azoimide. Hydrazoic acid.

Hydrogen peroxide, electrolytic formation of (HABER and GRINBERG), A., ii, 17.

electrolysis of, solution of, application of principle of maximum work to (TOMMASI), A., ii, 413.

comparison of, with hydroxylamine (WAGNER), A., ii, 650.

action of, on secondary and tertiary aliphatic amines (DUNSTAN and GOULDING), T., 1004; P., 1899, 124.

action of, on carbohydrates, in presence of ferrous salts (MORRELL and CROFTS), T., 786; P., 1899, 99.

action of, on formaldehyde (HARDEN), P., 1899, 158; (BLANK and FINKENBEINER), A., ii, 188, 820; (KASTLE and LOEVENHART), A., i, 565.

action of, on periodic or bromic acids (TANATAR), A., ii, 414.

action of, on periodates on (PÉCHARD), A., ii, 478.

action of, on photographic plates (RUSSELL), A., ii, 720.

decomposition of, by neutral or ammoniacal silver oxide or silver nitrate (BERTHELOT), A., ii, 149.

physiological action of (NENCKI and ZALESKI), A., ii, 676.

detection of (BARRALET), A., ii, 803.

distinction between ozone, nitrous acid, and (ERLWEIN and WEYL), A., ii, 179.

- Hydrogen phosphide**, absorption of, in presence of alkali chlorides (GÖTTIG), A., i, 657.
 action of, on copper, and copper oxides and salts (RUBÉNOVITCH), A., ii, 102, 652, 750.
 estimation of, in gaseous mixtures (RIBAN; JOANNIS), A. ii, 612.
- Hydrogen selenide**, velocity of formation and decomposition of (BODENSTEIN), A., ii, 548, 639.
- Hydrogen sulphide** in natural gas from Point Abino, Canada (PHILLIPS), A., ii, 35.
 formation and false equilibrium of; absorption of, by liquid sulphur (DUHEM), A., ii, 739.
 velocity of formation of, from its elements (BODENSTEIN), A., ii, 638.
 generator for (BRADLEY), A., ii, 413.
 action of, on carboxyhaemoglobin (SALKOWSKI), A., i, 784.
 equilibrium between, and hydrocyanic acid, in combination with potassium (BERTHELOT), A., ii, 737.
 action of, on metallic salts dissolved in organic solvents (NAUMANN), A., ii, 423.
 oxidation of (HARTLEY), A., ii, 437.
 equilibrium between silver potassium cyanide, hydrogen cyanide, and (BERTHELOT), A., ii, 422.
 action of, on silicates (DIDIER), A., ii, 596.
 action of sodium on, heat developed in (DE FORCRAND), A., ii, 589.
 action of sulphuric acid on (BERTHELOT), A., ii, 283.
 separation of sulphur from, by sulphur bacteria (HARTLEY), A., ii, 437.
 as a reagent (GRAEBE), A., ii, 178.
 estimation of, in air (LEHMANN), A., ii, 53.
- Hydrogiobertite** (?) from Lombardy (BRUGNATELLI), A., ii, 372.
- Hydroilmenite** from Bahia (HUSSAK), A., ii, 494.
- Hydroketole**, 3-nitro- (STOERMER and DRAGENDORFF), A., i, 46.
- Hydrolysis**. See Affinity, chemical.
- Hydrometer**, Baumé's, specific gravities corresponding with degrees on (EMERY), A., ii, 466.
- Hydrometer scales**, correct values of empirically divided (FUCHS), A., ii, 692.
- Hydromethylmorphimethine**, constitution of, and methiodide (VONGERICHTEN), A., i, 551.
- Hydromica** from New Jersey (CLARKE and DARTON), A., ii, 496.
- Hydroquinolines** from indoles, constitution of (PICCININI), A., i, 76.
- Hydrosorbic acid**. See Hexenoic acid.
- Hydrotropilidynecarboxylic acid**, reduction of (WILLSTÄTTER), A., i, 26.
- o-Hydroxyacetophenone**, oxime and bromo-derivative (DUNSTAN and HENRY), T., 67; P., 1898, 220.
- p-Hydroxyacetophenone** (VERLEY), A., i, 426.
- α-Hydroxy-acids**, unsaturated, transformation of, into hydrofurfurancarboxylic acids (FITTIG), A., i, 191.
- Hydroxy-ψ-allylcarbamide** (RUNDQVIST), A., i, 17.
- 2'-Hydroxy-3-aminophenyl-4'-methylquinoline** (HEIDRICH), A., i, 367.
- β-Hydroxy-α-isoamylbutyric acid**. See Hydroxynonoic acid.
- α-Hydroxy-β-isoamylisobutyric acid**. See Hydroxynonoic acid.
- 2-Hydroxyanthranol**, and diacetyl derivative (BISTRZYCKI and DE SCHEPPER), A., i, 151.
- Hydroxyazobenzene**, potassium derivative, action of hydrochloric acid on (HANTZSCH), A., i, 400.
- Hydroxybehenic acids**, chloro-, formation of, from erucic, *isoerucic* and brassic acids, and action of potash on (ALBITZKY), A., i, 862.
- Hydroxybenzalazine**, formation of (CAJAR), A., i, 146.
- o-Hydroxybenzaldehyde**. See Salicylaldehyde.
- m-Hydroxybenzaldehyde**, 2:4:6-*tribromo-* and 2:4:6-*trichloro-* (KRAUSE), A., i, 281.
- p-Hydroxybenzaldehyde**, thermochemistry of (DELÉPINE and RIVALS), A., ii, 727.
- m-Hydroxybenzaldoxime**, 2:4:6-*tribromo-* and 2:4:6-*trichloro-* (KRAUSE), A., i, 281.
- o-Hydroxybenzamide**, hydrolysis of (REID), A., i, 508.
- p-Hydroxy-α-benzamido cinnamic acid** (ERLENMEYER and HALSEY), A., i, 761.
- o-Hydroxybenzhydrylamine**, reduction of (COHN), A., i, 295.
- m-Hydroxybenzodiphenylfurfuran**, and acetyl derivative (JAPP and MELDRUM), T., 1041; P., 1899, 167.
- p-Hydroxybenzodiphenylfurfuran**, and acetyl derivative (JAPP and MELDRUM), T., 1041; P., 1899, 167.
- o-Hydroxybenzoic acid**. See Salicylic acid.
- m-Hydroxybenzoic acid**, sodium salt, heat of formation of (MASSOL), A., ii, 353.
 2:4:6-*tribromo-* and methylic salt (KRAUSE), A., ii, 281.

- m*-Hydroxybenzoic acid, 6-chloro-, methylic salt; and (?) chloro-, and its salts (MAZZARA), A., i, 811.
- p*-Hydroxybenzoic acid, sodium salt, heat of formation of (MASSOL), A., ii, 353.
- ethylic salt, benzoyl derivative of (LIMPRICHT), A., i, 292.
- methylic salt, stability of, towards alkalis, relative to that of methylic anisate (FISCHER), A., i, 262.
- p*-Hydroxybenzoic acid, 3-chloro-, and 3:5-dichloro-, and methylic and ethylic salts (MAZZARA), A., i, 811.
- 3:5-dichloro- (BERTOZZI), A., i, 877.
- m*-Hydroxybenzonitrile, 2:4:6-tri-bromo-, 2:4:6-trichloro-, and acetates (KRAUSE), A., i, 281.
- o*-Hydroxybenzophenonophenylimine, and acetyl derivative (GRAEBE and KELLER), A., i, 703.
- o*-Hydroxybenzylacetanilide (PAAL and HARTEL), A., i, 749.
- o*-Hydroxybenzyl ethylic and methylic ethers (THIELE and DIMROTH), A., i, 426.
- p*-Hydroxybenzylideneaminoguanidine, (WEDEKIND), A., i, 51.
- o*- and *p*-Hydroxybenzylideneamino-guanidines (THIELE and BIHAN), A., i, 46.
- o*-Hydroxybenzylideneazaine (THIELE and BIHAN), A., i, 46.
- o*- and *p*-Hydroxybenzylidenebornylamines (FORSTER), T., 1154; P., 1899, 194.
- o*-Hydroxybenzylidene-*m*-bromobenz-hydrazide (CURTIUS and PORTNER), A., i, 136.
- o*-Hydroxybenzylidenebromoethylamine, from condensation of bromoethylamine hydrobromide with salicylaldehyde (GABRIEL and LEUPOLD), A., i, 104.
- o*-Hydroxybenzylidene-1:3:2-*m*-xylidine (BUSCH), A., i, 496.
- o*-Hydroxybenzyl-*m*-nitracetanilide (PAAL and HARTEL), A., i, 749.
- o*-Hydroxybenzyl-*o*- and *p*-nitranilines (PAAL and HARTEL), A., i, 748, 749.
- 1:8-Hydroxybromotetrahydrocarvone (VON BAEYER and BAUMGÄRTEL), A., i, 223.
- Hydroxybutanedicarboxylic acid. See *β*-Hydroxyethylsuccinic acid.
- α*-Hydroxybutenoic acid. See Vinylglycollic acid.
- α*-Hydroxyisobutyramidoazobenzene (BISCHOFF and SOBOLEWSKI), A., i, 232.
- α*-Hydroxyisobutyranilide, formation of (LAMBLING), A., i, 53.
- α*-Hydroxybutyric acid, *l*-amylie salt, molecular rotation of (WALDEN), A., ii, 622.
- β*-Hydroxybutyric acid, phenylurethane, ethylic salt (LAMBLING), A., i, 53.
- γ*-chloro-, ethylic salt and nitrile of (LESPIEAU), A., i, 243.
- α*-Hydroxyisobutyric acid, formation of (DAIN), A., i, 436.
- phenylurethane, and ethylic salt (LAMBLING), A., i, 53.
- l*-amylie salt, molecular rotation of (WALDEN), A., ii, 622.
- α*-Hydroxybutyronitrile (*α*-cyanopropylic alcohol), and acetyl derivative (HENRY), A., i, 182.
- β*-Hydroxybutyronitrile (*β*-cyanoisopropylic alcohol), and its acetate and ethoxy-derivative (HENRY), A., i, 182.
- γ*-chloro-, from action of potassium cyanide on epichlorhydrin (LESPIEAU), A., i, 790.
- γ*-Hydroxybutyronitrile (*γ*-cyanopropylic alcohol), and its acetate and ethoxy-derivative (HENRY), A., i, 183.
- α*-Hydroxyisobutyronitrile (*dimethylglycollonitrile*, *acetonecyanhydrin*), and its acetyl derivative; also the action of phosphoric anhydride and phosphorus pentachloride on it (HENRY), A., i, 256.
- β*-Hydroxyisobutyronitrile (*α*-methyl-lactonitrile) (HENRY), A., i, 255.
- α*-, *β*-, and *γ*-Hydroxybutyronitriles, action of phosphoric anhydride on (HENRY), A., i, 257.
- Hydroxy-*cis*-*π*-camphanic acid (KIPPING), T., 143; P., 1898, 250.
- Hydroxycamphoceanolactone (JAGELKI), A., i, 629.
- m*-Hydroxycarbanilide (MEYER and SUNDMACHER), A., i, 755.
- Hydroxycarone, oxime, semicarbazone, phenylurethane (VON BAEYER and BAUMGÄRTEL), A., i, 224.
- 2, 2', 3, 3', 4, and 4'-Hydroxychalkones (*hydroxybenzylideneacetophenones*) and acetyl derivatives (VON KOSTANECKI and TAMBOR), A., i, 704.
- p*-Hydroxy-*ψ*-cumylaniline, bromo- (AUWERS and ERCKLENTZ), A., i, 35.
- o*-Hydroxy-*ψ*-cumylic alcohol (AUWERS and DE ROVAART), A., i, 34.
- p*-Hydroxy-*ψ*-cumylic alcohol, and its ether, thio-ether, methylic ether, bromo-derivatives, diacetate, and acetateisobutyrate (AUWERS and ERCKLENTZ), A., i, 35, 36.
- p*-Hydroxy-*ψ*-cumylpiperidine, bromo- (AUWERS and ERCKLENTZ), A., i, 35.

- 2'-Hydroxy-4':6'-diethoxychalkone**, and its acetate (VON KOSTANECKI, TAMBOR, and BEDNARSKI), A., i, 892.
- γ -Hydroxydiethylacetacetic acid**, lactone of, from decomposition of ethylic γ -acetoxydiethylacetacetate (CONRAD and GAST), A., i, 193.
- 4-Hydroxy-2:6-diethylbenzaldehyde** (JANNASCH and KATHJEN), A., i, 878.
- β -Hydroxy- $\alpha\alpha$ -diethylglutaconic acid**, supposed formation of (LAWRENCE), P., 1898, 252.
- α -Hydroxydihydrociscampholytic acid** (NOYES), A., i, 928.
- Hydroxydimercuracetic acid**. See under Mercury.
- 2'-Hydroxy-4':6'-dimethoxychalkone**, and its acetyl derivatives (VON KOSTANECKI, TAMBOR, and EMILEWICZ), A., i, 892.
- 2'-Hydroxy-3:4-dimethoxy-4'-ethoxychalkone**, and its acetyl derivative and dibromide (VON KOSTANECKI and RÓZYCKI), A., i, 911.
- 2'-Hydroxy-4':6'-dimethoxy-3:4-methylenedioxychalkone**, and acetyl derivative (VON KOSTANECKI, TAMBOR, and HERSTEIN), A., i, 893.
- γ -Hydroxydimethylacetacetic acid**, lactone of, and its bromo- and oximido-derivatives, and phenylhydrazone; also action of aniline on (CONRAD and GAST), A., i, 114.
- 4-Hydroxy-2:6-dimethylbenzoic acid**, and ethylic salt (NOYES), A., i, 284.
- 3-Hydroxy-1:2'-dimethylbenzoxazole**, and acetyl and benzoyl derivatives (HEINRICH), A., i, 172.
- β -Hydroxy- $\alpha\alpha$ -dimethylglutaconic acid** and its salts and derivatives, supposed formation of (LAWRENCE), T., 417; P., 1898, 252.
- α' -Hydroxy- $\alpha\alpha$ -dimethylglutaric acid**, lactone of, and its methylic salt (LAWRENCE), T., 421.
- β -Hydroxy- $\alpha\alpha$ -dimethylglutaric acid** and its ethylic salts; also its dissociation constant, and the action of acetic chloride and hydriodic acid on (REFORMATSKY), A., i, 481.
- α' -chloro-, ethylic salt, and its hydrolysis and reduction (LAWRENCE), T., 419; P., 1898, 251.
- γ -Hydroxy- $\alpha\alpha$ -dimethylglutaric acid**, lactone of (CONRAD and GAST), A., i, 259.
- α -Hydroxy- $\beta\beta$ -dimethylglutaric acid**, lactone of (PERKIN and THORPE), T., 56.
- 4'-Hydroxy-1:3-dimethyl- β -phenotriazine** (BAMBERGER), A., i, 545.
- 5-Hydroxydiphenyl, 2:4'- d -amino-**, salicylidene, anisylidene, *p*-nitrobenzylidene, diformyl, diacetyl, and tribenzoyl derivatives (JACOBSON and TIGGES), A., i, 274.
- o*-Hydroxydiphenylacetamidoacetolactone** (CRAMER), A., i, 153.
- o*-Hydroxydiphenylacetic acid**, ethylic salt, amide, anilide, and methylamide (CRAMER), A., i, 153.
- α -Hydroxydiphenylacetic acid**. See Benzilic acid.
- p*-Hydroxydiphenylamine**, *p*-amino-, dihydrochloride (SCHNEIDER), A., i, 499.
- m*-Hydroxydiphenylamine-saccharin** (MONNET and KÖTSCHET), A., i, 213.
- o*-Hydroxydiphenylaminoacetamide** (CRAMER), A., i, 153.
- β -Hydroxy- $\beta\gamma$ -diphenylbutyrolactone-acetic acid lactone** (STOBBE and RUSSWURM), A., i, 903.
- Hydroxydiphenylene ketone**, acetyl and benzoyl derivatives of; benzylic, methylic, and ethylic ethers of (HEYL), A., i, 216, 701.
- o*-Hydroxydiphenylglycoccine hydrochloride** (CRAMER), A., i, 153.
- Hydroxydiphenylene**. See 5-Hydroxydiphenyl, 2:4'- d -amino-.
- 4-Hydroxydiphenylmethane-2'-carboxylic acid** (BISTRZYCKI and DE SCHEPPER), A., i, 151.
- 2-Hydroxy-4:6-diphenylpyridine-5-carboxylic acid**, ethylic salt of (RUHMANN), T., 414; P., 1899, 55.
- β -Hydroxyethanesulphonic acid**, α -bromo-, and its constitution; action of phosphorus pentachloride on its potassium salt (KÖHLER), A., i, 488.
- Hydroxyethanetricarboxylic acid** (DURAND), A., i, 741.
- 2-Hydroxy-5-ethoxyacetophenone** (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 370.
- Hydroxyethylamine** (CHANCEL), A., i, 411.
- Hydroxyethylaminotetrahydro- β -naphthol** (KNORR), A., i, 463.
- Hydroxyethylcamphenemorpholine** (KNORR), A., i, 783.
- Hydroxyethylmalonamide**, formation of (TRAUBE and LEHMANN), A., i, 417.
- 1'-Hydroxyethylinaphthalanmorpholine** (KNORR), A., i, 782.
- Hydroxyethyl-*p*-nitraniline**, trichloro- (EIBNER), A., i, 42.
- Hydroxyethylquinoline**. See Quinolylethanol.
- Hydroxyethylsarcosine and copper salt** (KNORR), A., i, 784.

- β -Hydroxyethylsuccinic acid** (*hydroxybutanedicarboxylic acid*) and its calcium salt (SEMENOFF), A., i, 867.
- Hydroxyethylsulphonic acid** (*isethionic acid*), from reduction of ethylenesulphonic acid, and its potassium salt (KÖHLER), A., i, 20.
- Hydroxyethyl-*p*-toluidine**, trichloro- (EIBNER), A., i, 42.
- Dd*, *Dl*, *Ld*, and *r*-**Hydroxyfenchenic acids** (WALLACH and HERTZ), A., i, 66.
- 2-Hydroxyflavone** and acetyl derivative (VON KOSTANECKI, LEVI, and TAMBOR), A., i, 371.
- Hydroxyfluorene alcohol** (HEYL), A., i, 216.
- Hydroxyfurfuraldehyde**, derivatives of (CROSS, BEVAN, and HEIBERG), T., 751; P., 1899, 130.
- Hydroxygluconic acid** (RUFF), A., i, 869. from oxidation of gluconic acid by a bacterium, and its oxidation and constitution (BOUTROUX), A., i, 259.
- β -Hydroxyglutaric acid**, decomposition of, on distillation (FICHTER and KRAFFT), A., i, 255. action of hydrobromic acid on (WISLICIENUS), A., i, 736.
- o*-Hydroxyguanazybenzene** (WEDEKIND), A., i, 51.
- 2-Hydroxyhexahydro-*o*-toluic acid** (1-hydroxy-2-methylcyclohexane-1-carboxylic acid) (SERNOFF), A., i, 584.
- Hydroxyhexamethylene**. See *cyclo-Hexanol*.
- Hydroxyhexoic acid**, lactone of (*isocapro lactone*) (SEMENOFF), A., i, 793.
- α -Hydroxyisohexonitrile** (*isocalerylcyanhydrin*, *amylidenecyanhydrin*), action of phosphoric anhydride and phosphorus pentachloride on; also its acetyl derivative (HENRY), A., i, 256.
- Hydroxyhexylamine** (DEMJANOFF), A., i, 845.
- 2-Hydroxy- $\Delta^{2,4}$ -hydropyridone-3-carboxylic acid**, and ethylic salt; action of bromine on it; amide (GUTHZEIT and LASKA), A., i, 261.
- Hydroxylamine** (TANATAR), A., ii, 285. from action of sodium amalgam on sodium nitrite or nitrate (DIVERS), T., 87, 89; P., 1899, 222. constitution of (BRÜHL), A., ii, 285. synthesis of (JOUVE), A., ii, 364. comparison of, with hydrogen peroxide (WAGNER), A., ii, 650. oxidising action of (MARINO), A., ii, 558. action of chromic acid and potassium dichromate on (OECHSNER DE CONINCK), A., i, 243.
- Hydroxylamine**, action of methylic, ethylic, and *n*- and *iso*-propylic iodides on (DUNSTAN and GOULDING), T., 792; P., 1899, 58. action of sulphurous anhydride on (RASCHIG), A., ii, 285; (TANATAR), A., ii, 285, 415. orthophosphate and arsenate (KOHLSCHÜTTER and HOFMANN), A., ii, 652. nickel sulphate compound of (UHLENHUTH), A., ii, 661. potassio- and sodio-uranates (KOHLSCHÜTTER and HOFMANN), A., ii, 651. detection of (BAMBERGER), A., ii, 576. detection of, in presence of hydroxyamidodisulphonate (DIVERS and HAGA), T., 79.
- Hydroxylaminocarboxime**, dibenzoyl derivative, diphenylcarbamide, diphenylthiocarbimide (HARRIES and MAYRHOFER), A., i, 624.
- Hydroxylaminomolybdic acid**, and potassium derivative (KOHLSCHÜTTER and HOFMANN), A., ii, 651.
- Hydroxyl compounds**, taste of (HÖBER and KIESOW), A., ii, 207.
- Hydroxymenthyllic acid**, isomeride of (LÉSER), A., i, 479.
- p*-Hydroxymesityl-aniline** and -piperidine, dibromo-, and phenylurethane (AUWERS and ALLENDORFF), A., i, 33.
- p*-Hydroxymesitylic alcohol** and ethylic ether, dibromo-, and acetates of (AUWERS and ALLENDORFF), A., i, 32, 33.
- 2-Hydroxy-3-methoxy-4 : 4'-diethoxychalkone**, and acetyl derivative and dibromide (VON KOSTANECKI and RÓŻYCKI), A., i, 912.
- 3 : 4-Hydroxymethoxyphenylglyoxylic acid** (BOUVEAULT), A., i, 288.
- α -Hydroxy- α -methyl- β -isomethylsuccinic acid**, and amide, imide and silver salt (AUDEN, PERKIN, and ROSE), T., 914; P., 1899, 162.
- 2-Hydroxy-4-methyl-anthranol** and -anthraquinone, and diacetyl derivative of former (BISTRZYCKI and DE SCHEPPER), A., i, 151.
- o*-Hydroxy-*m*-methylbenzophenone-oxime**, transformation of (AUWERS and CZERNY), A., i, 181.
- 3-Hydroxy-1-methylbenzoxazole** (HEINRICH), A., i, 173.
- α - and β -Hydroxy-2'-methylbiphenyl-2-carboxylic acids** (BETHMANN), A., i, 520, 521.
- 4-Hydroxy-2-methyldiphenylmethane-2-carboxylic acid** (BISTRZYCKI and DE SCHEPPER), A., i, 151.

- Hydroxymethylenecyanacetic acid**, methylic, ethylic, and amyllic salts (BOLLEMONT), A., i, 791.
- β -Hydroxy- α -methylethylglutaconic acid**, supposed formation of (LAWRENCE), P., 1898, 252.
- 1-Hydroxy-2-methylcyclohexane-1-carboxylic acid** (SERNOFF), A., i, 584.
- 1-and 3-Hydroxy-1-methylcyclopentanes** (MARKOWNIKOFF), A., i, 799, 800.
- 4-Hydroxy-3-methyl- β -phenotriazine** (BAMBERGER and VON GOLDBERGER), A., i, 547.
- Hydroxymethylphthalimide**, and its acetate (SACHS), A., i, 280.
- α -Hydroxy- α -methyl- α -isopropyladipic acid**, from carvenone (TIEMANN and SEMMLER), A., i, 224.
- ω -Hydroxymethylpyromucic acid** (FENTON and GOSTLING), T., 429; P., 1899, 57.
- Hydroxymethylsuccinic acid** (*hydroxypyrotartaric acid*, *hydroxypropanedicarboxylic acid*) (SEMENOFF), A., i, 867.
- Hydroxymethylterephthalic acid** (PERKIN), T., 195; P., 1893, 111.
- 4'-Hydroxy- α -naphthylflavone** (KELLER and VON KOSTANECKI), A., i, 524.
- 1:4-and 2:1-Hydroxynaphthaldehydes**, imide-hydrochlorides, aniline derivatives, azine, and phenylhydrazones (GATTERMANN and VON HORLACHER), A., i, 378.
- 5-Hydroxynaphthaphenazine** (KEHRMANN and ZIMMERLI), A., i, 80.
- 2-Hydroxy-1:4-naphthoquinone**, 1-amino-, diacetyl derivative (KEHRMANN and HABERKANT), A., i, 62.
- 3-Hydroxynaphthoquinone**, 2-bromo- (LIEBERMANN and SCHLOSSBERG), A., i, 765.
- 1-Hydroxy-1:2-naphthoquinone-3:3-disulphonic acid**, sodium salt (HANTOWER and TAUBER), A., i, 63.
- Hydroxynaphthoquinoneimidesulphonic acid** (GAESS), A., i, 375.
- 2-Hydroxy-1:4-naphthoquinone-2'-sulphonic acid**, and *o*-phenylenediamine derivative (GAESS), A., i, 375.
- 1:4'-and 2:2'-Hydroxynaphthoic acids**, ethylic salt (FRIEDLÄNDER, HEILFERN, and SPIELFÖGEL), A., i, 709.
- β -Hydroxynaphthyl-1-mercuric acetate** (BAMBERGER), A., i, 156.
- 4-Hydroxynaphthylphthalide** (BISTRZYCKI and DE SCHEPPER), A., i, 152.
- o*-Hydroxy-*m*-nitraniline** (PAAL and HÄRTEL), A., i, 748.
- Hydroxynonoic acid** (*β -hydroxy- α -isomethylisobutyric acid*), and *β -cyano-derivative* (AUDEN, PERKIN, and ROSE), T., 918; P., 1899, 163.
- Hydroxynonoic acid** (*α -hydroxy- β -isomethylisobutyric acid*) (AUDEN, PERKIN, and ROSE), T., 920; P., 1899, 163.
- Hydroxyoctenoic acid**, from the action of water on cineolic acid (RUPE), A., i, 340.
- α -Hydroxyoctonitrile** (*heptylidene-cyanhydrin*, *ananthylidene-cyanhydrin*), action of phosphorus pentachloride on; also its acetyl derivative (HENRY), A., i, 256.
- Hydroxyparaconic acid**, and its calcium, barium, and silver salts (FITTIG and KÖHL), A., i, 418.
- 4-Hydroxy-1:2:2:6:6-pentamethylpiperidine hydrobromide**, perbromide (SAMTLEBEN), A., i, 542.
- Hydroxypentanedicarboxylic acids**. See *β -Hydroxypropylsuccinic acids*.
- 9-Hydroxy-9-phenacylphenanthrone** (JAPP and MELDRUM), T., 1034; P., 1899, 166.
- 4'-Hydroxy- β -phenotriazine** (*benzazimide*) (BAMBERGER and VON GOLDBERGER), A., i, 170, 546.
- o*-Hydroxyphenoxyacetic acid**, and its lactone and phenylhydrazone (MOUREU), A., i, 125, 138, 679, 700.
- o*-Hydroxyphenoxyacetone**, and its acetate, oxime, phenylhydrazone, and ethylacetal (MOUREU), A., i, 433.
- α -Hydroxyphenylacetic acid**. See *Mandelic acid*.
- p*-Hydroxyphenyl- α -aminopropionic acid**. See *Tyrosine*.
- 3-Hydroxy-2'-phenylbenzoxazole** (HEINRICH), A., i, 171.
- β -Hydroxy- γ -phenyl- β -benzylbutyrolactoneacetic acid lactone** (STOBBE, RUSSWURM, and SCHULTZ), A., i, 904.
- β -Hydroxy- δ -phenylbutyrolactoneacetic acid lactone** (STOBBE and HEUN), A., i, 902.
- m*-Hydroxyphenylcarbamide** (MEYER and SUNDMACHER), A., i, 755.
- 2-Hydroxyphenyl-4:6-dimethylpyrimidine** (GABRIEL and COLMAN), A., i, 638.
- 4-Hydroxyphenylisodinaphthazonium chloride**, and the nitrate (KEHRMANN and SUTHERST), A., i, 528.
- 4-Hydroxy-*o*-phenylenediamine**, and its hydrochloride and triacetyl derivative (KEHRMANN and GAUHE), A., i, 28.
- o*-Hydroxyphenyl-*p*-ethoxystyryl ketone**. See *4-Ethoxybenzylidene-2-acetophenone*.
- p*-Hydroxyphenylethylurethane ethylic carbonate** (HINSBERG), A., i, 496.

- p-Hydroxyphenylglyoxylic acid**, and ethylic salt (BOUVEAULT), A., i, 228, 437.
- Hydroxyphenylmercuric salts** (DIMROTH), A., i, 54, 428; (GRÜTZNER), A., i, 198.
- o-Hydroxyphenyl-p-methoxystyryl ketone**. See Anisylidene-2-hydroxyacetophenone.
- 3-Hydroxy-2'-phenyl-1-methylbenzoxazole**, 2:4-dinitro- (HEINRICH), A., i, 171.
- 2-Hydroxy-4-phenyl-6-methylpyridine-5-carboxylic acid**, ethylic salt (RUHEMANN), T., 412; P., 1899, 55.
- 2-Hydroxyphenyl-4-methylpyrimidone** (GABRIEL and COLMAN), A., i, 638.
- 3-Hydroxyphenylisonaphthaphenazonium sulphate**, 2-amino- (KEHRMANN and AEBI), A., i, 527.
- m-Hydroxyphenylloxamic acid**, and ethylic salt and amide (MEYER and SUNDMACHER), A., i, 755.
- o-Hydroxyphenylphosphoric acid** (GENVESSE), A., i, 342.
- p-Hydroxyphenylphthalazone** (MEYER), A., i, 707.
- 4-p-Hydroxyphenylphthalide** (MEYER), A., i, 707.
- 3-amino-, 3:5-dinitro- (BISTRZYCKI and DE SCHEPPER), A., i, 152.
- o-Hydroxyphenyl piperonalmethyl ketone**. See Piperonal-2'-hydroxyacetophenone.
- 3-Hydroxy-1-phenyl-5-pyrazolone** (MICHAELIS and RÖHMER), A., i, 233.
- 3-p-Hydroxyphenylpyridazine** and (?) **Hydroxyphenylpyridazine** (GABRIEL and COLMAN), A., i, 391, 392.
- 2-Hydroxyphenylaposafranonequinone** (KEHRMANN and DURET), A., i, 83.
- 2:1-Hydroxyphenyl-ac-tetrahydronaphthalene-3-carboxylic acid** (THIELE and MEISENHEIMER), A., i, 614.
- m-Hydroxyphenylthiocarbamide** (MEYER and SUNDMACHER), A., i, 755.
- p-Hydroxyphenylurethane ethylic carbonate** (HINSBERG), A., i, 496.
- m-Hydroxyphthalamic acid** (MEYER and SUNDMACHER), A., i, 756.
- 4-Hydroxyphthalic acid**, aniline salt, and anil of (GRAEBE and BUENZOD), A., i, 762.
- 1-Hydroxypiperidiniumacetic acid**, action of *Penicillium glaucum* on (WEDEKIND), A., i, 449.
- Hydroxypropanedicarboxylic acid**. See Hydroxymethylsuccinic acid.
- α-Hydroxypropionitrile** (*lactonitrile*, *α-cyanethylic alcohol*), action of phosphorus pentachloride on (HENRY), A., i, 183.
- heats of combustion, formation, solution, and hydrolysis of (BERTHELOT and ANDRÉ), A., ii, 400.
- α-Hydroxypropionitrilephenylurethane**, trichloro- (LAMBLING), A., i, 52.
- β-Hydroxypropionitrile** (*hydracrylic nitrile*, *ethylenelactonitrile*, *β-cyanethylic alcohol*), action of phosphorus pentachloride on (HENRY), A., i, 183.
- Hydroxypropylacetone**, chloro-, from action of hypochlorous acid on allylacetone (HENRY and ASCHMANN), A., i, 258.
- β-Hydroxypropylbenzamide** (UEDINCK), A., i, 497.
- Hydroxypropylmalonamide**, chloro- (TRAUBE and LEHMANN), A., i, 417.
- β-Hydroxypropylsuccinic acid** and **β-Hydroxyisopropylsuccinic acid** (*hydroxypentanedicarboxylic acids*) (SEMENOFF), A., i, 867.
- Hydroxypyrotartaric acid**. See Hydroxymethylsuccinic acid.
- Hydroxypyruvic acid**, osazone of, from action of phenylhydrazine on the product of the action of potash on oxynitrocellulose (VIGNON), A., i, 242.
- 2'-Hydroxyrosindone** (?) (KEHRMANN and LOCHER), A., i, 83.
- s-Hydroxyrosindone**. See Naphthasafranin.
- Hydroxystearic acids**, chloro-, formation of, from oleic, isooleic, and elaidic acids, and action of potash on (ALBITZKY), A., i, 862.
- p-Hydroxystilbene**, action of chlorine on (ZINCKE), A., i, 617.
- Hydroxysuccinic acid** (*α-isomalic acid*), preparation of, from pyruvic acid (POMMEREHNE), A., i, 574.
- Hydroxyisoterebic acid**, and the action of alkalis on it (FITTIG and PETKOW), A., i, 335.
- Hydroxyterpenylic acid**, from limonene; dilactone (GODLEWSKY), A., i, 920.
- β-Hydroxytetramethylglutaric acid**, synthesis of; also its dissociation constant, and the action of acetic chloride on it (MICHAILENKO), A., i, 482.
- 4-Hydroxy-2:2:6:6-tetramethylpiperidine**, 1-bromo- (SAMTLEBEN), A., i, 542.
- m-Hydroxythiocarbanilide** (MEYER and SUNDMACHER), A., i, 755.
- 5-Hydroxythiodiazole-2-sulphonic acid** (BUSCH and ZIEGELE), A., i, 826.

4-Hydroxy-*m*-toluic acid anilide, and its hydrogen phosphate (AUWERS and CZERNY), A., i, 132.

3-Hydroxytriazole and 3-Hydroxytriazole-5-carboxylic acid (MANCHOT), A., i, 84.

Hydroxytrimethylgallic acid and its methylic salt (HAMBURG), A., i, 365.

Hydroxytrimethylsuccinic acid, and its ethylic salt; also its anil and paratolil (KOMPPA), A., i, 419.

Hydroxyvaleric acid, chloro- (HENRY and ASCHMANN), A., i, 258.

***n*-Hydroxy-*n*-valeronitrile** (*n*-butylidenecyanhydrin), and the action of phosphorus pentachloride, acetic chloride, and dimethylamine on (HENRY), A., i, 567.

***n*-Hydroxyisovaleronitrile** (isobutylidenecyanhydrin) and its acetyl derivative; also the action of phosphorus pentachloride and phosphoric anhydride on it (HENRY), A., i, 256.

***m*-Hydroxy-*p*-xylic acid**, from dicampherylic acid, methylic and ethylic salts, and acetyl derivative (PERKIN), T., 187; P., 1893, 110.

***di*bromo-** (PERKIN), T., 191; P., 1893, 111.

***d*initro-**, silver salt (PERKIN), T., 190; P., 1893, 111.

***p*-Hydroxy-*o*-xylyl-aniline** and -piperidine, ***tri*bromo-** (AUWERS and DE ROVAART), A., i, 34.

***p*-Hydroxy-*o*-xylylic** bromide and methylic ether, ***tri*bromo-**, acetate (AUWERS and DE ROVAART), A., i, 34.

Hydrozincite from Belgium (CESÀRO), A., ii, 433.

Hydurinephosphoric acid (FISCHER), A., i, 174.

Hyoscine (*scopolamine*), presence of, in *Solanaceæ* (PINNER), A., i, 178.

formula and properties of (HESSE), A., i, 312.

(Merck's), identity of, with scopolamine (MERCK), A., i, 91.

Hyoscyamine, presence of, in *Solanaceæ* (PINNER), A., i, 178.

amount of, in Indian *Hyoscyamus muticus*, and its extraction (DUNSTAN and BROWN), T., 72; P., 1898, 240.

***ψ*-Hyoscyamine**, isolation of, from *Duboisia myoporoides* (MERCK), A., i, 91.

Hyoscyamus muticus, Egyptian, the alkaloids of (GADAMER), A., i, 395.

Indian, alkaloid of (DUNSTAN and BROWN), T., 72; P., 1898, 240.

Hypersthene from the Transvaal (HENDERSON), A., ii, 111.

Hyponitrosoacetic acid, constitution of (DIVERS) T., 118.

Hypoxanthine from egg-albumin, action of yeast-extract on (GERET and HAHN), A., i, 94.

from uric acid (SUNDBIK), A., i, 174.

I.

***l*-Iditol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.

Idocrase, alteration of, to garnet (JERMÉEFF), A., ii, 671.

Ilicic alcohol, probable presence of, in oleo-resin of *Dacryodes hexandra* (MORE), T., 719; P., 1899, 151.

Ilmenite from Russia (KOVÁČ), A., ii, 668.

alteration of (HUSSAK), A., ii, 494.

Imidocarbonic acid, dioxime of, from action of nitric peroxide on mercurydimethyl (BAMBERGER), A., i, 263.

Immunity, effect of administration of inorganic salts in producing (CHARIN, GUILLEMONAT, and LEVADITI), A., ii, 781.

of certain animals to eels' serum (CAMUS and GLEY), A., ii, 783.

Inanition, metabolism during (SCHULZ), A., ii, 773.

Indazole, 3-amino-, and its diacetyl, dibenzoyl, and *p*-nitrobenzylidene derivatives (BAMBERGER and VON GOLDBERGER), A., i, 545.

bromo-, ***di*bromo-**, and iodo- (BAMBERGER), A., i, 721.

3-chloro- (BAMBERGER and VON GOLDBERGER), A., i, 546.

Indazoleazo-*β*-naphthol (BAMBERGER and VON GOLDBERGER), A., i, 546.

anhydride (BAMBERGER), A., i, 722.

Indazoletriazolen and salts (BAMBERGER), A., i, 720.

Indazolylazo-dimethylaniline and -*β*-naphthol (BAMBERGER), A., i, 721.

Indiarubber. See Caoutchouc.

Indican, constitution of (MARCHLEWSKI and RADCLIFFE), A., i, 386.

amount of, in human urine (BOUMA), A., ii, 568.

estimation of, in urine (OBERMAYER), A., ii, 263; (WANG), A., ii, 458.

Indicators, dissociation of, in different liquids (WADDELL), A., ii, 83.

Indigo, formation of (BRÉAUDAT), A., i, 232.

fermentation, action of various reagents on (BRÉAUDAT), A., i, 832.

Java, a yellow compound in (RAWSON), A., ii, 620

- Indigo**, assay of (GROSSMANN), A., ii, 74 ; (BRYLINSKI), A., ii, 194 ; (HOLT-SCHMIDT), A., ii, 535 ; (RAWSON), A., ii, 620.
estimation of indigo-blue and -red in (KOPFESCHAAER), A., ii, 263.
- Indigotin**, derivatives of, and constitution of (MARCHLEWSKI and RADCLIFFE), A., i, 386.
solubility of, in nitrobenzene (GERLAND), A., ii, 74.
- Indigotinsubsulphonic acids** (GERLAND), A., i, 717.
- Indium** in tungsten minerals and zinc blende (ATKINSON), A., ii, 600.
- Indole**, heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
results of administration of (WANG), A., ii, 678.
- Indoles**, 3-nitroso-, constitution of (ANGELI and SPICA), A., i, 938.
picrates of, cryoscopic behaviour of (BRUNI and CARPENÉ), A., ii, 8.
- Indole bases**, detection of (GNEZDA), A., ii, 715.
- Indone**, bromo-, of Meldola and Hughes, identity with β -bromo- α -naphthaquinone (LIEBERMANN and SCHLOSSBERG), A., i, 764.
bromo- and dibromo- (LANSER), A., i, 894.
- Indones**, colour reactions of, with malonic acid derivatives (LIEBERMANN), A., i, 219.
condensation of, with ethylic cyanoacetate and with ethylic malonate (LIEBERMANN), A., i, 219, 373, 522.
- Indonecyanacetic acid**, chloro-, and bromo-, ethylic salts (LIEBERMANN), A., i, 522.
- Indonedicyanacetic acid**, diethylic salt (LIEBERMANN), A., i, 522.
- Indonemalonic acid**, chloro-, ethylic salt (LIEBERMANN), A., i, 373.
- Indonemalononitrile**, bromo- (LIEBERMANN), A., i, 373.
- Indoneresorcinol ether**, chloro-, and acetyl derivative (LIEBERMANN), A., i, 523.
- Indophenol**, formation of (SCHNEIDER), A., i, 499.
- Indoxylsulphuric acid**, estimation of, in urine (OBERMAYER), A., ii, 458.
- Induline**, constitution of (SCHAPOSHNIKOFF), A., i, 431.
- Infants**, relation of ash of, to ash of human milk (HUGOUNENQ), A., i, 682.
metabolism of normal and atrophic (RUBNER and HEUBNER), A., ii, 775.
- Inorganic compounds**, constitution of (WERNER), A., ii, 278.
- r-Inositol**, action of *Aspergillus niger* on (TANRET), A., ii, 171.
- Intestinal juice**, properties of (KRÜGER), A., ii, 164.
- Intestine**, causes of absorption by the (REID), A., ii, 775.
absorption of proteids by the (MENDEL), A., ii, 230 ; (LEVENE and LEVIN), A., ii, 309.
absorption of salts by the (HÖBER), A., ii, 372.
large, influence on metabolism of removal of (HARLEY), A., ii, 774.
- Inulin** from different plants, solubility of (PARKIN), A., ii, 790.
action of diastatic ferments on (CHITTENDEN and SIVITER), A., ii, 310.
- Invertase**, precipitation of, by magnesium sulphate (SYKES and HUSSEY), A., i, 313.
- Invertin**, purification, composition, and hydrolytic product of (OSBORNE), A., i, 967.
- Iodine** in atmosphere (GAUTIER), A., ii, 593.
and iodides, absence of, from the atmosphere of Toulouse (GARRIGOU), A., ii, 414.
in copper ores (AUTENRIETH ; DIESEL-DORFF ; OCHSENIUS), A., ii, 760.
in Vesuvian products (MATTEUCCI), A., ii, 600.
in mineral waters from Royat (DUBOIN), A., ii, 602.
in sea water, and in algae, lichens, and fungi (GAUTIER), A., ii, 649.
position of, in periodic system (WILDE), A., ii, 148.
recovery of, from waste products (CHATTAWAY and ORTON), A., ii, 650.
atomic refraction of, in some compounds (SULLIVAN), A., ii, 398.
vapour, colour of, in gases at atmospheric pressure and in a vacuum ; vapour pressure of, and molecular latent heat of solid and liquid (DEWAR), P., 1898, 241.
solution of, in gases (BROWN), P., 1898, 244.
solution of, in compressed gases (VILLARD), A., ii, 143.
solubility of, in dilute solutions of potassium iodide (NOYES and SEIDENSTRAKER), A., ii, 11.
solubility of, in water (DIETZE), A., ii, 150.
action of, on sodium hydroxide solution (PÉCHARD), A., ii, 593.

- Iodine**, action of, on sulphur (PRUNIER), A., ii, 650.
 action of, on sulphuric acid (ADIE), P., 1899, 133.
 rate of absorption of, in man (RÖSEL), A., ii, 775.
 and iodides, physiological action of (HEINZ), A., ii, 440.
 nature of compound of, in the thyroid gland (BLUM), A., ii, 164.
 presence of, in certain tissues after administration of iodides (LEVENE), A., ii, 312.
 organic, supposed presence of, in urine (VITALI), A., ii, 116.
- Iodine compounds**, colour and stability of (KASTLE), A., ii, 476.
- Hydriodic acid**, pure, preparation of (VANDENBERGHE), A., ii, 150.
 preparation, and heats of formation, vaporisation and solution of (COTTRELL), A., ii, 401.
 heat of formation, and velocities of formation and decomposition of (BODENSTEIN), A., ii, 637.
 decomposition of, by action of light (BERTHELOT), A., ii, 2.
- Iodides**, absorption of, by the skin, and deposition in different organs (GALLARD), A., ii, 503.
 separation of chlorides and bromides from (BAUBIGNY), A., ii, 328.
- Iodic acid**, constitution of, and salts (ROSENHEIM and LIEBKNECHT), A., ii, 743.
 and anhydride, decomposition of (BERTHELOT), A., ii, 197.
 decomposition of, by action of light (BERTHELOT), A., ii, 2.
 salts of, estimation of, by oxalic acid (PÉCHARD), A., ii, 477.
 estimation of, and its use in analysis (JÖRGENSEN), A., ii, 248.
- Iodates**, electrolytic formation of (VAUBEL), A., ii, 88.
 detection of chlorates and bromates in presence of (VITALI), A., ii, 803.
- Di-iodates**, action of, on acidified iodides (WAGNER), A., ii, 326.
- Periodic acid**, constitution of, and salts (ROSENHEIM and LIEBKNECHT), A., ii, 743.
 action of hydrogen peroxide on (TANATAR), A., ii, 414.
- Iodine, estimation and separation of**:—
 estimation of (BOUGAULT), A., ii, 193, 803.
 estimation of, by thiosulphate (ANDERSON and SMITH), A., ii, 574.
 estimation of, in bismuthic iodides (SPINDLER), A., ii, 245.
- Iodine, estimation and separation of**:—
 estimation of, in presence of bromine and chlorine (BAUBIGNY), A., ii, 244.
 estimation of, in organic substances (LONGHI), A., ii, 328.
 estimation of traces of, in organic matters colorimetrically (BOURCET), A., ii, 516.
 estimation of traces of, in ores (AUTENRIETH), A., ii, 804.
 estimation of, in periodides of alkalis, and assay of opium by (PRESCOTT), A., i, 90.
 estimation of, in sea water (GAUTIER), A., ii, 477.
 separation of chlorine and bromine from (SWINTON), A., ii, 122; (SPECKETER), A., ii, 123; (BAUBIGNY), A., ii, 328.
- Iodoform**, crystallography of (POPE), T., 46; P., 1898, 219.
 action of, on silver nitrate; also its detection, and the action of light on it (STUBENRAUCH), A., i, 398.
 decomposition of, by light (KREMERS and KOSKE), A., i, 397.
 decomposition of ethereal solution of (BOUGAULT), A., i, 1.
 assay of (MEILLERE), A., ii, 184.
- Iodometry** (WAGNER), A., ii, 326.
- Iodothylin**, nature of (BLUM), A., ii, 164.
 as the active substance of the thyroid gland (ROOS), A., ii, 779.
- ψ-Ionone** (STIEHL), A., i, 67.
- Ipomic acid**. See Sebacic acid.
- Iridium** in meteoric iron (DAVISON), A., ii, 308.
 commercial, purity of (MYLIUS and DIETZ), A., ii, 160.
- Iridium bases**:
 Iridiopentammine chloride (MYLIUS and DIETZ), A., ii, 160.
- Iridium, estimation and separation of**:—
 estimation of, in platinum (BERGSÖE), A., i, 321.
 separation of gold from (VANINO and SEEMANN), A., ii, 579.
 separation of, from ruthenium and osmium (LEIDIE), A., ii, 664.
- Iron**, potential difference between, and solutions of ferric chloride in water or organic solvents (KAHLENBERG), A., ii, 624.
 anode, solution of, in electrolysis of sodium acetate and acetic acid (ARTH), A., ii, 723.
 heat of combustion of (DITTE), A., ii, 426.
 action of, on nitric acid (FREER and HIGLEY), A., ii, 480.

Iron, action of liquid sulphur dioxide on (HARPF ; LANGE), A., ii, 594.
 action of, on sulphuric acid (ADIE), P., 1899, 133.
 action of sulphuric and sulphurous acids on (BERTHELOT), A., ii, 283.
 action of tartaric and citric acids on (ULSCH), A., i, 868.
 action of water and saline solutions on (MELDRUM), A., ii, 103.
 action of a hard water on (HOWE and MORRISON), A., ii, 475.
 action of water containing carbon dioxide on (KRÖHNKE), A., ii, 752.
 absorption and excretion of, in the guinea-pig (SWIRSKI), A., ii, 373.
 amount of, in blood plasma and leucocytes (HÄUSERMANN), A., ii, 231.
 amount of, in the human fœtus (HUGOUNENQ), A., ii, 503.
 diminution of, in the spleen during pregnancy (CHARRIN), A., ii, 773.
Iron alloys with nickel, magnetic behaviour of (OSMOND), A., ii, 352.
Iron compounds as colouring matter in natural waters (SPRING), A., ii, 228.
Iron salts, diffusion of light by solutions of (SPRING), A., ii, 585.
 absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
 influence of, on the oxidation of iodide by bromic acid (SCHLOFF), A., ii, 147.
 action of pyrogallol on (HIRSCH), A., ii, 817.
Iron chromium, and iron molybdenum carbides (WILLIAMS), A., ii, 157.
 tungsten, iron molybdenum, and iron manganese carbides (CARNOT and GOUTAL), A., ii, 293.
 tungsten carbide (WILLIAMS), A., ii, 104.
 oxides, reduction of, by aluminium (FRANCK), A., ii, 103.
 silicides (LE CHATELIER), A., ii, 219 ; (LEBEAU), A., ii, 427 ; (CHALMOT), A., ii, 488.
Ferric arsenate, ortharsenate, and basic arsenates (METZKE), A., ii, 293.
 bromide, hydrate of (BOLSCHAKOFF), A., ii, 428.
 chloride, solutions of, in water or organic solvents, potential difference between iron and (KAHLENBERG), A., ii, 624.
 conductivity of, temperature coefficient of, in alcoholic ether, (CATTANEO), A., ii, 355.

Iron :

Ferric chloride, solutions of, in various solvents, conductivity of ; molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
 equilibrium in systems containing water, ammonium chloride and (MOHR), A., ii, 15.
 action of antimony trioxide on (HARDING), A., ii, 490.
 action of aqueous azoimide on (CURTIUS and RISSOM), A., ii, 92.
 chlorination by means of (THOMAS), A., i, 676.
 use of, in organic syntheses ; compound of, with benzophenone and benzoic chloride (NENCKI), A., i, 879.
 ammonium chlorides (MOHR), A., ii, 15.
 hydroxide, colloidal solution of (KRAFFT), A., ii, 473.
 colloidal, coagulation of (LINEBARGER), A., ii, 12.
 gelatinous, composition of (VAN BEMMELEN), A., ii, 599.
 nitrate, hydrates of (FUNK), A., ii, 210.
 oxide, amount of, in Egyptian porcelain (LE CHATELIER), A., ii, 751.
 decomposition of carbon monoxide in presence of (BOUDOUARD), A., ii, 417, 595.
 hydrogel of (BEMMELEN), A., ii, 487.
 influence of, on formation of sodium sulphate (KRUTWIG and DERNONCOURT), A., ii, 214.
 estimation of, in phosphates (BLATTNER and BRASSEUR), A., ii, 128.
 sulphate, electrolytic reduction of (TOMMASI), A., ii, 138.
 action of sulphurous acid on (ANTONY and MANASSE), A., ii, 753.
 action of, on micro-organisms (MÜLLER), A., ii, 506.
 ammonium, potassium, rubidium, and cesium alums (HOWE and O'NEAL), A., ii, 103.
Ferrous salts, absorption of nitric oxide by solutions of (THOMAS), A., ii, 368, 426.
 reduction by, in volumetric analysis (JOB), A., ii, 51.
Ferrous thioantimonite (POUGET), A., ii, 663.
 arsenite (REICHARD), A., ii, 23.
 chloride, hydrates of (KUZNETZOFF), A., ii, 658.

Iron :—

- Ferrous** dithionate, formation of, from ferric sulphate, by action of sulphurous acid (ANTONY and MANASSE), A., ii, 753.
- lead iodide (MOSNIER), A., ii, 222.
- lead thallium nitrite (PRZIBYLLA), A., ii, 223.
- sulphate, crystallisation of, in a magnetic field (WRIGHT and KREIDER), A., ii, 265.
- thermal change on diluting a saturated solution of (POLLOCK), P., 1899, 8.
- loss of water by, and oxidation of (SCHARIZER), A., ii, 30.
- electrolytic oxidation of (TOMMASI), A., ii, 138.
- action of aqueous azoimide on (CURTIUS and RISSOM), A., ii, 92.
- action of iodates and periodates on (PÉCHARD), A., ii, 478.
- potassium sulphate, hydrates of, and their solubilities and transition temperatures (KÜSTER and THIEL), A., ii, 753.
- sulphide, relation of magnetic pyrites and troilite to (LINCK), A., ii, 416.

Iron organic compounds :—

- Ferrous pyridine salts (REITZENSTEIN), A., i, 162.
- Ferric thiocyanate as the colouring matter of the amethyst (NABL), A., ii, 561.

Iron ores from Alba (Toso), A., ii, 600.

- analysis of (WETZKE), A., ii, 61.
- estimation of iron in (LEHNKERING), A., ii, 251.
- estimation of sulphur in (MEINEKE), A., ii, 518.

Iron products, estimation of carbon in (CARNOT and GOUTAL), A., ii, 809.

Iron :—

- Cast iron**, heat of solution of, influence of silicon on (CAMPBELL and HARTMAN), A., ii, 29.
- detection of phosphorus in, by spectrum (DE GRAMONT), A., ii, 345.
- estimation of carbon in (WDOWISZEWSKI), A., ii, 181.
- estimation of sulphur in, volumetrically (THILL), A., ii, 693.

Galvanised iron, action of water on (DAVIES), A., ii, 555.

Steel, effect of low temperatures on magnetic properties of (OSMOND), A., ii, 630.

- estimation of carbon in (WDOWISZEWSKI), A., ii, 181.
- estimation of nickel in (LUCAS), A., ii, 614.

Iron :—

- Steel**, estimation of nickel in, volumetrically (GIORGIS), A., ii, 452.
- estimation of sulphur in, volumetrically (THILL), A., ii, 693.
- estimation of tungsten in (AUCHY), A., ii, 524.

Iron (in general), detection, estimation, and separation of :—

- analysis of, preparation of pure metal for use in (SCHRÖDER), A., ii, 814.
- detection of cobalt in presence of (BETTINK), A., ii, 815.
- detection of ferrous and ferric iron in silicates (PENFIELD and FOOTE), A., ii, 305.
- detection of phosphorus in (GRAMONT), A., ii, 345.
- estimation of, colorimetrically (AVERY and DALES), A., ii, 252.
- estimation of, electrolytically (AVERY and DALES), A., ii, 251, 814 ; (VERWER and GROLL), A., ii, 386.
- estimation of, volumetrically (NORTON), A., ii, 613.
- estimation of, volumetrically, in hydrochloric acid solution (WILLENZ), A., ii, 696.
- estimation of carbon in (WDOWISZEWSKI), A., ii, 181 ; (SPÜLLER), A., ii, 809.
- estimation of, in iron ores (LEHNKERING), A., ii, 251.
- estimation of nickel in (LUCAS), A., ii, 614 ; (GIORGIS), A., ii, 452.
- estimation of nickel in presence of (NEUMANN), A., ii, 386.
- estimation of, in organic matter (RÖHMANN and STEINITZ), A., ii, 814.
- estimation of, in phosphates (BLATTNER and BRASSEUR), A., ii, 128.
- estimation of silver and mercury in presence of (KOLLOCK), A., ii, 811.
- estimation of sulphur in (THILL), A., ii, 693 ; (HERTING), A., ii, 804.
- estimation of sulphuric acid in presence of (KÜSTER and THIEL), A., ii, 247, 611 ; (LUNGE), A., ii, 805.
- estimation of tungsten in (AUCHY), A., ii, 524.
- estimation of, in water (SEYDA), A., ii, 341.
- separation of cadmium from (STORTENBEKER), A., ii, 126.
- separation of cobalt, copper, manganese, nickel, and zinc from (BREARLEY), A., ii, 815.
- separation of copper, lead, tin, and zinc from (LANGMUIR), A., ii, 522.
- separation of phosphates from (ANTONY and MONDOLEO), A., ii, 330.

- Iron** (in general), separation of:—
separation of zirconium from (MATTHEWS), A., ii, 335.
- Iron-boracite** containing iodide (ALLAIRE), A., ii, 156.
- Isatin**, absorption spectra and constitution of (HARTLEY and DOBBIE), T., 647; P., 1899, 48.
heat of formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- Isatis alpina* leaves, action of various reagents on the fermentative process in (BRÉAUDAT), A., i, 832.
- Isatoic acid**, methylic hydrogen and dimethylic salts and anhydride (ERDMANN), A., i, 939.
- Isomerism**, dynamic (LOWRY), T., 235; P., 1899, 25, 76.
in inorganic compounds (HANTZSCH), A., ii, 207.
optical, and triboluminescence (ANDREOCCI), A., ii, 719.
position, and rotatory power (GUYE and BABEL), A., ii, 718, 719.
- Isomorphism**, mass effect of complex radicles in (PENFIELD and FOOTE), A., ii, 305.
- Isomorphous mixtures**, equilibrium of (BRUNI), A., ii, 407.
of saturated and unsaturated open-chain compounds (BRUNI and GORNI), A., ii, 731.
- Isoprene**. See *Pentinenene*.
- Isoprene-erythritol**, chlorhydrin, and action of water on (MOKIEWSKY), A., i, 726.
- Itaconic acid**, synthesis of, by the action of pyruvic acid on malonic acid (GARZAROLLI-THURNLACKH), A., i, 790.
and its conversion into mesaconic acid, also its reduction (FITTIG and LANGWORTHY), A., i, 332.
oxidation of (FITTIG and KÜHL), A., i, 418.
- Ivy**, presence of hederin in (HOUDAS), A., i, 772.
physiological action of active principle of (JOANIN), A., ii, 605.

J.

- Jaborandi leaf**, oil of (SCHIMMEL and Co.), A., i, 924.
- Jadeite** from Buima (KRENNER), A., ii, 672.
- Jamesonite** from Saxony, the Harz, and Westphalia (GUILLEMAIN), A., ii, 757.
artificial (SOMMERLAD) A., ii, 217.

- Jasmal**, from jasmine blossoms (VERLEY), A., i, 376.
- Jasmine**, oil of (SCHIMMEL and Co.), A., i, 923.
blossoms, oil of (VERLEY), A., i, 376; (HESSE and MÜLLER), A., i, 377, 441.
- Jasper** from Colorado (HILLEBRAND), A., ii, 564.
- Jaundice**, experimental, influence of, on the metabolism of sugar (VON REUSZ), A., ii, 168.
- Jeffersonite** from Franklin furnace (HILLEBRAND), A., ii, 301.
- Jordanite** from Switzerland (GUILLEMAIN), A., ii, 757.
artificial (SOMMERLAD), A., ii, 218.
- Juniper**, empyreumatic oil of (CATHELINÉAU and HAUSER), A., i, 536, 711.

K.

- Kainite**. See *Agricultural chemistry*.
- Kainosite** from Sweden (SÖGREN), A., ii, 36.
- Kamacite** from the Magura meteorite (COHEN), A., ii, 674.
from the Meuselbach meteorite (LINCK), A., ii, 566.
- Kaolinite** from Bohemia (KASAI), A., ii, 435.
from Brazil (DERBY), A., ii, 501.
from Colorado (EAKINS), A., ii, 564.
from Moravia (KOVÁŘ), A., ii, 671.
from Russia (ZEMJATSCHEVSKY), A., ii, 110.
from Schneeberg (MOROZEWICZ), A., ii, 765.
so-called colloidal (KASAI), A., ii, 435.
action of reagents on (ZEMJATSCHEVSKY), A., ii, 110.
rate of filtration of water or alcohol through (HAUSER), A., ii, 277.
- α -Ketobutyroic acid**. See *Propionyl-formic acid*.
- Ketocoumaran**, preparation of (FRIEDLÄNDER), A., i, 675.
- Ketocoumarancarboxylic acid**, and methylic and ethylic salts (FRIEDLÄNDER), A., i, 675.
- Ketodihydrobenzene**, hexachloro-, hylo-tropic-isomeric forms of (SCHAUM), A., ii, 733.
- Ketohexamethylene**. See *cyclo-Hexanone*.
- Ketohexoses**, action of hydrogen bromide on (FENTON and GOSTLING), T., 423; P., 1899, 57.
- Ketolactone**, $C_{10}H_{16}O_3$, from *l*-terpineol and menthanetriol (GODLEWSKY), A., i, 920.

Ketone, $C_8H_{14}O$, from α -hydroxydihydro-*cis*-campholytic acid, oxime (NOYES), A., i, 928.

from *cis*-campholytic acid (NOYES), A., i, 284.

$C_{16}H_{14}O$, two isomeric, and a dibromide (GOLDSCHMIEDT and KNÖPPER), A., i, 140.

$C_{22}H_{18}O_2N_2$, two isomeric, formed by the action of phenylhydrazine on phenyl phthalidemethyl ketone (HAMBURGER), A., i, 143.

Ketones, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.

reduction of (KAUFFMANN), A., i, 152.

detection of (LUMIÈRE, LUMIÈRE and SEYEWETZ), A., i, 415.

detection and isolation of (BAMBERGER), A., i, 666.

aliphatic, action of nitrous acid on (PONZIO and DE GASPARI), A., i, 252.

oxidation of, in the organism (SCHWARZ), A., ii, 40.

cyclic, new series of, from wood tar (BÉHAL), A., i, 121.

hydroaromatic, polymerisation of (KNOEVENAGEL and REINECKE), A., i, 340.

unsaturated, reactions of (HARRIES), A., i, 578.

Ketones and Quinones. See also:—

Acenaphthenequinone.

Acetamidohydroxynaphthaquinone.

Acetamidonaphthaquinone.

Acetone.

Acetonebenzil.

Acetophenone.

Acetoxybenzylideneacetophenone.

Acetoxymethylanthraquinone.

4'-Acetoxy- α -naphthaflavone.

Acetylacetone.

Acetylanisole.

Acetylbenzyl cyanide.

Acetylbutylbenzene.

Acetyldimethylcyclohexanone.

Acetyldiphenyl.

Acetyldiphenylpyridone.

Acetylethylbenzene.

Acetylmesitylene.

Acetylmethylethylheptenone.

Acetylmethylheptenone.

Acetylphenetole.

Acetylphenylmethane.

Acetylcyclopropane.

Acetyloluene.

Acetylxylene.

Allylacetone.

iso-Amylacetone.

Anhydracetonebenzil.

Anhydracetonedibenzil.

Ketones and Quinones. See:—

Anilinoacetamidoquinone.

Anilinobenzylbenzylideneacetone.

Anilinohydroxyquinone.

Anilinophenylketotetrahydroquinazoline.

Anilinoquinone.

p-Anisylidenecoumaranone.

Anisylidene-4-ethoxy-2-hydroxyacetophenone.

Anisylidene-2-hydroxyacetophenone.

Anisylidenepaeonol.

Anisyl methyl ketone.

Anthraphenone.

Azelaone.

Benzil.

Benzoin.

Benzophenone.

Benzoylacetone.

Benzoylacetophenetidine.

Benzoylfurfuran.

Benzoylmesitylene.

Benzoylmethylmorpholquinone.

Benzoylpropionanilide.

β -Benzoylpropionic anhydride.

Benzoyltriethylbenzene.

Benzoylxylene.

Benzylideneacetone.

Benzylideneanhydracetonebenzil.

Benzylidenediacetylacetone.

Benzylidenedibenzyl ketone.

Benzylidenediphenylcyclopentenone.

Benzylidenepaeonol.

Benzylidenephénylacetone.

Benzylidenequinone.

Benzylidenetriphenylacetone.

Benzylphenylacetone.

Bismethylheptenone.

iso-Butylideneacetone.

Butyryl-*p*-cymene.

Camphenilone.

Camphoquinone.

Camphorone.

Carvenone.

Chloralacetone.

Cinnamylideneanhydracetonebenzil.

Cresolphenolquinone.

Cresolquinone.

Cumylideneanhydracetonebenzil.

Cymeneacetophenone.

Cymophenone.

Cymyl methyl ketone.

Deoxybenzoin.

Deoxytoluoin.

r- and *l*-Desmotroposantonin.

Desylenebenzylideneacetone.

3 : 2'-Diacetoxyflavone.

Diacetoxynaphthaquinone.

Diacetylacetone.

Diacetylmorpholquinone.

Diacetylphenylmethane.

Diacetylphloroglucinol.

Ketones and Quinones. See:—

Diacetyltriethylbenzene.
 Dianilino*dichloro*quinone.
 Dianilino*nitro*quinone.
 Di-*o*-anisylidihydrazoneacetylacetone.
 Dibenzoylanthrane.
 Dibenzoyldiphenylbutadiene.
 Dibenzoyldiphenylbutane.
 Dibenzoyldiphenylbutene.
 Dibenzoyldiphenylpropane.
 Dibenzoylmesitylene.
α-Dibenzoylpropane.
 Dibenzyl ketone.
 Dibutylquinone.
 Dicarvelone.
 Diethoxyacetophenone.
 Diethoxybenzylidenecoumaranone.
o-Diethoxydiphenyltetrahydropyrene.
 Diethoxyflavone.
 Diethoxyphenyl styryl ketone.
 Diethylindolinone.
 Diethyl ketone.
 Di-eucarrone.
 Di-*α*-furfuryloctanedione.
 Digitoflavone.
 Dihydrocamphorone.
 Dihydroxyacetone.
 Dihydroxy-*ββ'*-dipyridyldi-*p*-quinone.
 Dihydroxyflavone.
 Dihydroxynaphthaaquinone.
 Dihydroxyquinone.
 Dihydroxyxanthone.
 Diketobenzobisdihiropyrazole.
 Diketodimethyldihexahydrophenyl.
 Diketonaphthadihiropyrazole.
 Diketonaphthafurazan.
 Diketophenoheptamethylene.
 Diketotetramethyldihexahydrophenyl.
 Dimethoxybenzylidenecoumaranone.
 Dimethoxyethoxybenzylidenecoumaranone.
 Dimethoxypiperonalcoumaranone.
 Dimethylacetone.
 Dimethylacetophenone.
 Dimethylacetylacetone.
 Dimethylaminohydroxybenzophenone.
 Dimethylbenzophenone.
 Dimethyl diketone.
 Dimethyl*cyclohexan*edione.
 Dimethyl*cyclohexan*one.
 1 : 3-Dimethyl-5-*cyclohexen*one.
 Dimethylindolinone.
aa-Dimethylketohexamethylene.
 Dimethylketopyrrolidone.
 Dimethylnaphthaaquinone.
 3 : 3-Dimethylpyrrolidone.
 Dinaphthaaquinone.
 Dipentamethenylpinacolin.
 Diphenacyldihydrophenanthrene.
 Diphenylanthrone.

Ketones and Quinones. See:—

1 : 1-Diphenylbutene-1-one.
 Diphenyldihydrazoneacetylacetone.
 Diphthalidedimethyl ketone.
 Dipropyl ketone.
 Ditolylanthrone.
 Di-*o*-tolylidihydrazoneacetylacetone.
 Ditolyl-3-methylanthrone.
 Ethoxybenzimidazolone.
 4-Ethoxybenzylidene-2-acetophenone.
 Ethoxydiphenylanthranone.
 Ethoxyflavanone.
 Ethoxyflavone.
 Ethoxyhydroxyacetophenone.
 Ethoxymethoxyflavone.
 2-Ethoxy-*α*-naphthaaflavone.
 Ethoxyphenyldimethoxypyrrolidone.
p-Ethoxyphenyl methyl ketone.
 Ethoxypiperonalcoumaranone.
 Ethoxyquinone.
 Ethyl amyl ketone.
 Ethyl *iso*amyl ketone.
 Ethyl butyl diketone (*propionyl-valeryl*).
 Ethyl butyl ketone.
 Ethyl heptadecyl ketone.
 Ethyl *iso*hexyl ketone.
 Ethylideneacetone.
 Ethyl pentadecyl ketone.
 Ethylphthalazone.
 Ethyl propyl diketone (*propionyl-butyryl*).
 Ethyl propyl ketone.
 Fenchocamphorone.
 Fenchone.
α-Furfurylbutanone.
 Furfurylideneacetone.
 Furfurylideneacetophenone.
 Furfurylmethyl*cyclohexen*one.
 Geranylideneacetone.
cyclo-Hexanone.
 Hydracetylacetone.
β-Hydrindone.
 Hydroxyacetophenone.
 Hydroxycarone.
 Hydroxychalkone.
 Hydroxydiethoxychalkone.
 Hydroxydimethoxychalkone.
 Hydroxydimethoxyethoxychalkone.
 Hydroxydimethoxymethylenedioxychalkone.
 Hydroxydiphenyleneketone.
 Hydroxyflavone.
 Hydroxymethoxydiethoxychalkone.
 Hydroxymethylanthraquinone.
 4'-Hydroxy-*α*-naphthaaflavone.
 Hydroxynaphthaaquinone.
 Hydroxyphenacylphenanthrone.
 Hydroxyphenoxyacetone.
 Hydroxyphenyl*laposa*franonequinone.
 Hydroxyphenylmethylpyrimidone.
 Hydroxyphenylphthalazone.

Ketones and Quinones. See :—

Hydroxypropylacetone.
 ψ -Ionone.
 Ketocoumaran.
 α -Ketotetrahydronaphthalene.
allo-Lemonylidene-acetone.
 Menthone.
 Mesitoymesitylene.
 Mesityl methyl ketone.
 Mesityl oxide.
 Methoxydiethoxybenzylidenecoumarone.
 Methoxydiethoxychalkone.
 Methoxydiphenylanthranone.
 Methoxyethoxyflavanone.
 Methoxyethoxyflavone.
 4'-Methoxy- α -naphthaflavone.
 Methoxyphenyldimethylpyrrolidine.
 Methoxyphenylketodihydroquinazoline.
 Methoxyphenylmethylcyclohexenone.
 Methoxyphenylmethylpyrimidine.
 3-Methoxypiperonalcoumarone.
 Methylacetylacetone.
 β -Methylæsculetin.
 Methyl amyl diketone (*acetylhexoyl*).
 Methyl isoamyl diketone (*acetyliso-hexoyl*).
 Methylbenzophenone.
 Methyltertbutylacetophenone.
 Methyl butyl diketone (*acetylvaleryl*).
 Methyl butyl ketone.
 Methylcinnamylidenacetone.
 Methylcinnamylidenacetophenone.
 Methyldeoxybenzoin.
 Methyl ethyl ketone.
 Methyl ethylphthalazone.
 Methylheptenone.
 2 : 3 : 5-Methylhexenone.
 Methylcyclohexenone.
 Methyl isohexyl diketone.
 Methyl hexyl ketone.
 Methyl hydroxyethyl ketone.
 Methylnonenone.
 Methyl nonyl ketone.
 Methylcyclopentanone.
 Methylisopropylcyclohexanone.
 Methyl *n*- and *iso*-propyl ketones.
 Methyltriphenylcyclohexenone.
 Morpholquinone.
 α -Naphthaquinone.
 Naphthaquinoneaminoguanidine.
 Naphthaquinonediphenylmethane.
 Naphthaquinonetetramethyldiaminodiphenylmethane.
 1 : 1'-Naphthoylhydrazimethylene.
 Naphthoylmethyleneisobenzalazine.
 Pentahydroxybenzophenone (*mac-lurin*).
 Phenacylphenanthrone.
 Phenanthraquinone.
p-Phenetylpyridazinone.

Ketones and Quinones. See :—

Phenoketoheptamethylene.
 Phenolthymoquinone.
 Phenoltoluquinone.
 Phenylacetacetic acid.
 Phenyl anilinomethyl ketone.
 Phenylbenzoin.
 Phenylbenzylideneglyoxalidone.
 Phenylbenzylidenepyridazone.
 Phenylcamphopyrazolone.
 Phenyldimethylketopyrrolidone.
 Phenyldimethylpyridone.
 Phenylmethylcamphopyrazolone.
 Phenylmethylketotetrahydroquinazoline.
 Phenylmethylcyclohexanone.
 Phenylmethylcyclohexenones.
 Phenylmethylimidazonenaphthaquinone.
 Phenylmethylketodihydroquinazoline.
 Phenyl methyl ketone.
 Phenylmethylketotetrahydroquinazoline.
 Phenylmethylthioketodihydroquinazoline.
 Phenyl pentadecyl ketone.
 Phenyl phthalidemethyl ketone.
 Phenylpyridazone.
 Phenyltetrahydro- β -naphthenone.
 Phenyltolylanthrone.
 Phenyltolylmethylanthrone.
 Phenyl tollyl ketone.
 Phenyltolylketosulphone.
 Phloracetophenone.
 Phorone.
 Phthalide dimethyl ketone.
 Pinacolin.
 Pinacone.
 Pinolone.
 Piperil.
 Piperonalcoumaranone.
 Piperonal-2'-hydroxyacetophenone.
 Piperonalpaeonol.
 Piperonylmethylcyclohexenone.
 Propionylanisoil.
 Propionyl- ψ -cumene.
 Propionylethylbenzene.
 Propionylpentethylbenzene.
iso-Propylimidazolone.
iso-Propylphenylmethylcyclohexanone.
iso-Propylphenylmethylcyclohexenone.
 Pulegenacetone.
 Pulegone.
 Quinone.
 Quinoneaminoguanidine.
 Quinonebisdiphenylmethane.
 Quinonebistetramethyldiaminodiphenylmethane.
 Santonin.
 Δ^4 -Terpeneone.
 Tetrahydro- β -oxazole diketones.
 Tetrahydroxybenzophenone.

Ketones and Quinones See:—

- Tetraketohydronaphthalene.
Thymolphenoquinone.
Thymoquinone.
Toluquinone.
Tolyl anilinomethyl ketone.
Tolyl ethyl ketone.
p-Tolylidenacetone.
p-Tolylidenacetophenone.
Tolyl methyl ketone.
Triacetylphenylpentane.
Triethylbenzophenone.
Trihydroxybenzophenone (*alizarin yellow A*).
Triketomethylcyclohexene.
Trimethoxyanthraquinone.
Trimethoxybenzoylacetophenone.
Trimethoxydihydroanthrone.
Trimethylbenzimidazolone.
Trimethyldeoxybenzoin.
Triphenyloxazolone.
Tuberone.
Xyloquinone.
Xylyl methyl ketone.
Xylylquinazolone.
Xylyltetrahydroketquinazoline.

Ketonic bases (SCHMIDT), A., i, 4.

Ketoterpin, and sodium derivative, oxime, semicarbazone, phenylhydraz-one (VON BAEYER and BAUMGÄRTEL), A., i, 224.

α -Ketotetrahydronaphthalene, conversion of oxime, into tetrahydro- α -naphthylamine (KIPPING and HILL), T., 152; P., 1899, 5.
semicarbazone, phenylhydrazone, *p*-bromophenylhydrazone, oxime (KIPPING and HILL), T., 148; P., 1899, 4.

Ketovalerolactonecarboxylic acid, from action of sulphuric acid on barium parapyruvate, and the action of alkalis on it (WOLFF), A., i, 483.

Kickxia Africana, caoutchouc from (LINDET), A., ii, 508.

Kidney, influence of the, on metabolism (BRADFORD), A., ii, 310.

Kinetic theory of liquids (JÄGER), A., ii, 404.

Kola, estimation of caffeine in (GADAMER), A., ii, 390.

Kola nuts, constituents and derivatives of (SCHWEITZER), A., i, 300.

Kolanin, preparation of caffeine and theobromine from, and its composition (SCHWEITZER), A., i, 301.

Kosin and its oxidation, triacetyl, and tribenzoyl derivatives (DACCOMO and MALAGNINI), A., i, 158.

Kreittomite. See Gahnite.

Krypton, discovery of (RAMSAY), A., ii, 212.

Krypton, position of, in the scheme of elements (CROOKES), A., ii, 552; (HOWE), A., ii, 740.

Kyanite from Scotland (HEDDLE), A., ii, 497.

Kyanite-schist from Brazil (DERBY), A., ii, 501.

Kyschtmite from the Urals (MOROZEWICZ), A., ii, 763.

Kynurenic acid, origin of, in the organism (MENDEL and JACKSON), A., ii, 117.

L.

Laben. See Agricultural chemistry.

Lac, stick- and bleached, constituents of (TSCHIRCH and FARNER), A., i, 446.

Laccase (BERTRAND), A., i, 313; (ROUX), A., ii, 444.

Laemoid as an indicator (WADELL), A., ii, 83; (GLASER), A., ii, 573.

Lactase, presence of, in the small intestine (WEINLAND), A., ii, 604.

isolation of, from lactose-fermenting yeasts (DIENERT), A., ii, 442.

Lactic acid (*i*-ethylidenelactic acid, *α* -hydroxypropionic acid), manufacture and purification of (CLAFLIN), A., i, 12.

electrical dispersion of (LÖWE), A., ii, 201.

estimation of (ULSCH), A., ii, 802.

Lactic acid, alkali salts, action of molybdic oxide on (HENDERSON, ORR, and WHITEHEAD), T., 553; P., 1899, 108.

etheral salts, densities, specific rotations, and molecular volumes of (FRANKLAND), T., 357.

ethylic salt, chlorocarbonate, carbamate and nitrocarbamate of (THIELE and DENT), A., i, 16.

phenylurethane, sodium, and ethylic salts of, and trichloro- (LAMBLING), A., i, 52.

Lactic acid, trichloro-, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.

***d*-Lactic acid**, methylic and ethylic salts, preparation and specific rotation of (PURDIE and IRVINE), T., 484; P., 1899, 74.

Lactone, $C_{13}H_{10}O_7$, obtained in condensation of ethylic acetonedicarboxylate (JERDAN), T., 810.

$C_{15}H_{14}O_2$, from benzaldehyde and pyrocinchonic anhydride (THIELE), A., i, 216.

$C_{13}H_{16}O_8$, from oxidation of trimethylbrazil (GILBODY and PERKIN), P., 1899, 28.

Lactone, $C_{16}H_{12}O_2$, from desylacetic acid and acetic anhydride (THIELE), A., i, 217.

$C_{17}H_{12}O_2$, from benzaldehyde and phthalic anhydride (THIELE), A., i, 216.

$C_{17}H_{12}O_2$, from dibenzylidenepropionic acid and bromine (THIELE), A., i, 217.

$C_{17}H_{14}O_2$, from phenacylhydrocinnamic acid and acetic anhydride (THIELE), A., i, 217.

$C_{20}H_{12}O_6$, from condensation of oxalic acid and resorcinol, its triacetyl and dinitro-derivatives (HEWITT and PITT), T., 522; P., 1899, 100.

$C_{20}H_{14}O_6$, tetracetyl derivative, from condensation of oxalic acid and resorcinol (HEWITT and PITT), T., 523; P., 1899, 101.

Lactones, picrates of, cryoscopic behaviour of (BRUNI and CARPENÉ), A., ii, 8.

Lactones. See also:—

Acetoxyhydroxydimethylglutaric lactone.

2-Acetylangelicalactone, α - and β -.

Acid-cellulose lactone.

α - and r -Arabonic lactones.

Benzoxhydroxydimethylglutaric lactone.

iso-Butylparaconic lactone.

Butyrolactone.

ψ -Campholactone.

Campholide.

Cannabinolactone.

Cantharidin.

iso-Cantharidin.

iso-Caprolactone (*hydroxyhexolactone*).

Cinnamylidenedimethylcrotonolactone.

Cinnamylidenedimethylcrotonolactonecarboxylic acid.

Cornicularolactone.

Coumarin.

$\alpha'\beta$ -Dihydroxy- $\alpha\alpha$ -diethylglutaric lactone.

Dihydroxydimethylacetoacetic lactone.

$\alpha'\beta$ -Dihydroxy- $\alpha\alpha$ -dimethylglutaric lactone.

$\beta\gamma$ -Dihydroxy- $\alpha\alpha$ -methylethylglutaric lactone.

Dihydroxynonoic γ -lactone

Diphenylbutyrolactoneacetic acid.

Diphenylcrotonolactone.

Diphenylcrotonolactoneacetic acid.

Diphenylcrotonolactonecarboxylic acid.

$\alpha\delta$ -Diphenyl- $\alpha\gamma$ -pentanolide.

Ethylparaconic acid.

iso-Heptodilactone.

Hexylparaconic acid.

Lactones See:—

Hydroxycamphoceanolactone.

γ -Hydroxydiethylacetoacetic lactone.

γ -Hydroxydimethylacetoacetic lactone.

Hydroxydimethylglutaric lactones.

Hydroxydiphenylacetamidoaceto-lactone.

Hydroxydiphenylbutyrolactoneacetic lactone.

Hydroxyhexoic lactone.

Hydroxyphenoxyacetic lactone.

Hydroxyphenylbenzylbutyrolactone-acetic acid.

Hydroxyphenylbutyrolactoneacetic lactone.

Hydroxyterpenylic dilactone.

Ketolactone, $C_{10}H_{16}O_3$.

1:3-Methylmorpholone.

iso-Nonodilactone.

Oxycannabin.

Phenylbenzylbutyrolactoneacetic acid.

Phenylbenzylcrotonolactone.

Phenylbenzylcrotonolactoneacetic acid.

Phenylbenzylidenebutylolactone.

Phenylbenzylidenecrotonolactone.

γ -Phenyl- β -benzylidene- α -ketobutyrolactone.

Phenylbenzylidenemethylcrotonolactone.

Phenylbromobenzyl- α -crotonolactone.

Phenylbromobenzylidenecrotonolactone.

Phenylbutyrolactoneacetic acid.

Phenyl-*p*-cresylacetamidoacetolactone.

Phenyl-*m*-cresylbromacetolactone.

Phenyl-*p*-cresylbromacetolactone.

Phenylcresylethoxyacetolactone.

Phenylhydroxynaphthylbenzylloxy-acetolactone.

Phenyl- β -hydroxynaphthylbromacetolactone.

Phenylhydroxynaphthylethoxyacetolactone.

Phenylhydroxynaphthylmethoxy-acetolactone.

Phenylorcyllacetolactone.

Phenylresorcyllacetolactone.

Phenylxyllylketoximecarboxylic oximidolactone.

Propylparaconic and *iso*-Propylparaconic acids.

iso-Propylsoparaconic acid.

iso-Saccharin.

iso-Terebic acid.

Undecodilactone.

Lactonic acid, $C_{10}H_{16}O_4$, from hydroxymethylisopropyladipic acid (TIEMANN and SEMMLER), A., i, 225.

Lactonitrile. See α -Hydroxypropionitrile.

- Lactose** (*milk sugar*), action of alkalis on (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 661.
 action of yeast enzymes on (KALANTHAR), A., i, 102.
 digestion of, in the small intestine (WEINLAND), A., ii, 604.
 fate of, after injection into the circulation (PAVY), A., ii, 677.
 detection of (GAWALOWSKI), A., ii, 255.
 estimation of sucrose in presence of (DOWZARD), T., 371; P., 1899, 9.
- Lævulic acid** (*β -acetylpropionic acid*), synthesis of; also its semicarbazone (BLASE), A., i, 793.
 influence of, on formation of azo-compounds (GOLDSCHMIDT and BÜRKLE), A., ii, 276.
 bromo-, ethylic salt, action of, on the sodium derivatives of ethylic acetate and benzoate (KEHRER and IGLER), A., i, 569.
- Lævulose** (*fructose*), action of methyl-alcoholic ammonia on (DE BRUYN), A., i, 732.
 oxidation of, by hydrogen peroxide (MORRELL and CROFTS), T., 789; P., 1899, 99.
 action of yeast-extract and Munich bottom-yeast on (BUCHNER and RAPP), A., ii, 606.
 fate of, after injection into the circulation (PAVY), A., ii, 677.
 detection of (GAWALOWSKI), A., ii, 255.
 estimation of, as osazones (LINTNER and KROBER), A., ii, 66.
 estimation of, in brewing sugars (MORRIS), A., ii, 187.
- Lageriolite**, artificial (MOROZEWICZ), A., ii, 764.
- Lanarkite**, artificial (SCHULTEN), A., ii, 161.
- Lanthanum** nitrate (WYROUBOFF and VERNEUIL), A., ii, 225.
 cerium nitrate, and sulphate; oxides and their polymerides (WYROUBOFF and VERNEUIL), A., ii, 424.
 oxide, constitution of (WYROUBOFF and VERNEUIL), A., ii, 598.
 influence of, on the solubility of cerosoceric oxide in nitric acid (WYROUBOFF and VERNEUIL), A., ii, 424.
 peroxide (MELIKOFF and PISSARJEWSKY), A., ii, 598.
- Lanthanum**, separation of:—
 separation of cerite metals from (SCHÉELE), A., ii, 291.
 separation of, from cerium (MENGEL), A., ii, 223.
- Larch-resin**, and acetyl derivatives and isomeride (BAMBERGER and LANDSIEDL), A., i, 929.
- Lard**, rancidity of (SCALA), A., i, 478.
 detection of cotton-seed oil in (BÖMER), A., ii, 259.
 estimation of fatty acids in (TWITCHELL), A., ii, 69.
- Lariciresinol** and acetyl derivatives and isomeride (BAMBERGER and LANDSIEDL), A., i, 929.
- Latebraric acid** and **Latebride** from *Pulveraria latebrarum* (HESSE), A., i, 385.
- Laterite** from the Seychelles (BAUER), A., ii, 565.
- Laumontite** from Minnesota (BERKEY), A., ii, 371.
 vapour pressure of (TAMMANN), A., ii, 8.
- Lauramide**, action of bromine on, in presence of sodium methoxide (JEFFREYS), A., i, 731.
- Lauric acid** (*dodecoic acid*), physical constants of (SCHEIJ), A., i, 668.
 boiling point of, in a vacuum (KRAFFT), A., ii, 465.
 and sodium salt, melting points of, and temperatures of solidification of solutions of (KRAFFT), A., ii, 471.
 sodium salt, boiling point of solutions of, in alcohol (KRAFFT), A., ii, 471.
 separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Laurionite** from Laurion, Greece (SMITH and PRIOR), A., ii, 433.
- iso*-**Lauronic acid**, reduction of; constitution (BLANC), A., i, 927.
- iso*-**Lauronolic acid** and amide from camphoroxime (FORSTER), T., 1142, 1148; P., 1899, 193.
 constitution of (BLANC), A., i, 537, 630, 925.
 salts, ethers, o- and p-toluidides, α - and β -naphthalides (BLANC), A., i, 925.
 oxidation of (BLANC), A., i, 443, 927.
- ψ -**Lauronolic acid**, methylic salt (LEES and PERKIN), P., 1899, 24.
- iso*-**Lauronolic alcohol**, acetyl derivative (BLANC), A., i, 925.
- iso*-**Lauronolic aldehyde**, semicarbazone, semioxamazone; cinchonic acid from (BLANC), A., i, 925.
- iso*-**Lauronolide** (BLANC), A., i, 927.
- Laurotetanine** and salts, phenylthiocarbamide and dibenzoyl derivatives, and physiological action (FILIPPO), A., i, 312.
- Lauryldecylcarbamide** (JEFFREYS), A., i, 731.
- Lautarite**, artificial (SCHULTEN), A., ii, 161.

Lavendula pedunculata, oil of, composition of (SCHIMMEL and Co.), A., i, 299.

Lead, crystals of (MIERS and HARTLEY), ii, 432.

cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.

potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.

mixtures of, with zinc, partition of tin or silver in (BANCROFT), A., ii, 470.

action of, on nitric acid (FREER and HIGLEY), A., ii, 480.

action of, on sulphuric acid (ADIE), P., 1899, 133; (BERTHELOT), A., ii, 283.

action of water on (MELDRUM), A., ii, 100.

action of waters containing dissolved salts on (ANTONY), A., ii, 290.

Lead alloys, with antimony; lead antimonide (STEAD), A., ii, 32.

with calcium (TARUGI), A., ii, 749.

Lead amalgams, of different concentrations, E.M.F. between (CADY), A., ii, 395.

Lead salts, diffusion of light by solutions of (SPRING), A., ii, 585.

action of magnesium on solutions of (BRYANT), A., ii, 289.

reduction of, by calcium carbide (TARUGI), A., ii, 749.

Lead antimonate (SENDERENS), A., ii, 557.

and lead potassium thioantimonites (POUGET), A., ii, 663.

ortharsenite, formation of (REICHARD), A., ii, 23.

haloid salts of, solubility of, in alcohols (ROHLAND), A., ii, 144.

bromide and iodide, colour of (KASTLE), A., ii, 476.

chloride or bromide, latent heats of fusion of, and melting and boiling points of bromide (WEBER), A., ii, 724.

fused, dissociation coefficient in (LORENZ), A., ii, 269.

or iodide, electrolysis and heat of formation of (CZEPINSKI), A., ii, 268.

tetrachloride, compounds of, with amines (MATTHEWS), A., ii, 295, 296.

chlorobromides, chloriodides and bromiodide (THOMAS), A., ii, 420, 421, 484, 597.

Lead, lithium, sodium rubidium, ammonium, calcium, strontium, barium, magnesium, zinc, cadmium, iron, manganese, chromium, nickel, cobalt, phosphorus, arsenic, antimony, stannous, aluminium, and beryllium iodides (MOSNIER), A., ii, 222.

oxychlorides from Laurion, Greece (SMITH and PRIOR), A., ii, 432.

nitrate, decomposition of, by heat (DIVERS), T., 84.

thermal change on diluting a saturated solution of (POLLOK), P., 1899, 8.

copper thallium, nickel thallium, and iron thallium nitrites (PRZIBYLLA), A., ii, 223.

hyponitrite (DIVERS), T., 121; P., 1898, 224.

oxide, reduction of, by aluminium (FRANCK), A., ii, 103.

and carbonate, reduction of, by hydrogen (HÉLIER), A., ii, 555.

Minium dissociation of (LE CHATELIER), A., ii, 221.

dioxide, estimation of, volumetrically (REICHARD), A., ii, 333.

peroxide, or superoxide (KASSNER), A., ii, 657.

phosphate (CAVEN and HILL), A., ii, 29.

sulphate, solubility of, in aqueous ammonium acetate (LONG), A., ii, 812.

basic sulphate (*lanarkite*) crystalline (SCHULTEN), A., ii, 161.

sulphide, action of sulphuric acid on (BERTHELOT), A., ii, 283.

separation of the sulphides of arsenic, antimony, and bismuth from (MOYER), A., ii, 697.

Lead organic compound :—

Lead pyridine chloride (REITZENSTEIN), A., i, 163.

Lead, estimation and separation of :—

estimation of, electrolytically (HOLLARD), A., ii, 523.

estimation of, in ores (MOLDENHAUER), A., ii, 57; (SCHNEIDER), A., ii, 250.

estimation of, in tin plate and "tinned" foods (CARLES), A., ii, 183.

estimation of traces of, in water (LIEBRICH), A., ii, 58.

separation of antimony and arsenic from (ATKINSON), A., ii, 615.

separation of copper, iron, tin, and zinc from (LANGMUIR), A., ii, 522.

separation of mercury from (JANNASCH and DEVIN), A., ii, 59.

Leather. See Agricultural chemistry.

Leaves. See Agricultural chemistry.

- Lecanora sordida*, vars. *glaucoma* and *Swartzii*, constituents of (HESSE), A., i, 383.
- Lecanoric acid**, from various lichens, and identity with parmeliatic acid (ZOFF), A., i, 716.
presence of, in various lichens (HESSE), A., i, 382.
- Lecasteric acid**, **Lecasteride**, and ethylic salts (HESSE), A., i, 383.
- Lecidea confluens*, and *L. sudetica*, constituents of (ZOFF), A., i, 717.
- Lecidic acid** and **Lecidol**, from *Lecidea cinereoatra* (HESSE), A., i, 384.
- Lecithin** and myelin substances in the brain and egg-yolk (ZUELLER), A., ii, 504.
- Lees**, estimation of mercury and copper in (VIGNON and BARRILLOT), A., ii, 452.
- Leguminosæ**. See Agricultural chemistry.
- allo-Lemonal**, from lemon-grass oil (STIEHL), A., i, 66.
composition of (DOEBNER), A., i, 223.
- Lemon-grass oil** (STIEHL), A., i, 66;
(SEMMLER and DOEBNER), A., i, 223;
(SCHIMMEL and Co.), A., i, 299;
(TIEMANN), A., i, 623; (LABBÉ), A., i, 710, 711; (BOUVEAULT; FLATAU; STIEHL), A., i, 711.
- Lemonol**. See Geraniol.
- allo-Lemonylidene-acetone** (STIEHL), A., i, 67.
- Lentil**. See Agricultural chemistry.
- Leonhardtite**, vapour pressure of (TAMMANN), A., ii, 8.
- Lepidine**. See 4'-Methylquinoline.
- Lepidinealkine**. See 4'-Quinolylethanol.
- Lepidium sativum*, glucoside and essential oil of (GADAMER), A., i, 930.
- Lepidomelane** from Thuringia, alteration of (ZSCHIMMER), A., ii, 768.
- Lepra candelaris*, constituents of (HESSE), A., i, 385.
- Leproric acid**, from *Pulveraria chlorina* (HESSE), A., i, 385.
- Leucæmia**, excretion of phosphates and alloxuric substances in (WHITE and HOPKINS), A., ii, 316.
- Leucine** (α -amino-n-hexoic acid), presence of, in fungi (WINTERSTEIN), A., ii, 240.
presence of, in the broad-bean (BOURQUELOT and HÉRISSEY), A., ii, 324.
presence of, in yeast-extract (WRÓBLEWSKI), A., ii, 170.
crude, purification of (RÖHMANN), A., i, 96.
viscosity of undercooled (TAMMANN), A., ii, 272.
as a source of sugar in the living body (COHN), A., ii, 776.
- Leucocytes**, action of, on bacilli (HARDY), A., ii, 165.
- Leucomaines**. See Ptomaines.
- Lianas**, African, caoutchouc from (LINDET), A., ii, 508.
- Licareol**, action of acetic anhydride on (BARBIER and LÉSER), A., i, 100.
- l-Licarhodal**. See *alloLemonal*.
- Licarhodal**, and its oxidation (BARBIER and LÉSER), A., i, 101.
- Lichenostearic acid**, from *Platysma cucullatum* (ZOFF), A., i, 717.
and its methylic and ethylic salts (SINNOLD), A., i, 13.
- Lichenosterylic acid** (SINNOLD), A., i, 13.
- Lichens**, constituents of (HESSE), A., i, 381; (ZOFF), A., i, 716.
iodine in (GAUTIER), A., ii, 649.
- Light**, monochromatic, source of (FABRY and PEROT), A., ii, 461.
yellow, for polarimeter (DUPONT), A., ii, 77.
influence of, in dissipating an electrostatic charge (KNOBLAUCH), A., ii, 622.
diffusion of, by solutions (SPRING), A., ii, 585.
ultra-violet, influence of, in nitrogen-assimilation by plants (LAURENT, MARCHAL, and CARPIAUX), A., ii, 173.
See also Photochemistry.
- Lignin**, formation and variation of lignin in wood of conifers (CIESLAR), A., ii, 447.
- Lignin reaction** of wood, the so-called (CZAPEK), A., i, 560.
- Lignite**, formation of (BERTRAND), A., ii, 430.
- Lignite tar**, constituents of (OEHLER), A., i, 816.
- Lignoceric acid**, estimation of, in earth nut oil (ARCHBUTT), A., ii, 260.
- Legumin**, absorption spectrum of (BLYTH), T., 1164; P., 1899, 175.
- Lily bulbs**, variation in the reserve materials of (DU SABLON), A., ii, 445.
- Lime**. See Calcium oxide, and also Agricultural chemistry.
- Limestone**, metamorphic, minerals in (CLOUGH and POLLARD), A., ii, 667.
silicified, from Antarctic regions (PRIOR), A., ii, 436.
estimation of carbonic anhydride in (SCHENKE), A., ii, 809.
- Limestone, magnesian**, weathering of (PHILIPPI), A., ii, 306.
- Limonene** from oil of mandarins (FLATAU and LABBÉ), A., i, 442.
from limonene bromide (GODLEWSKY and ROSHANOWITSCH), A., i, 920.

- Limonene**, behaviour of, towards form-
aldehyde (KRIEWITZ), A., i, 298.
oxidation of (GODLEWSKY), A., i, 920.
- α -Limonene**, from lemon-grass oil
(STIEHL), A., i, 66.
- Linalool** in oils of neroli and petit grain
(CHARABOT and PILLET), A., i, 620.
from oil of thyme (LABBÉ), A., i, 621.
action of alcoholic potash on (TIE-
MANN), A., i, 184; (CHARABOT),
A., i, 767.
and acetate, estimation of (HESSE and
MÜLLER), A., i, 441.
- l*-Linalool**, behaviour towards acetic an-
hydride, formic acid, and acetic acid
(STEPHAN), A., i, 68.
- Linoleic acid**, estimation of (FARN-
STEINER), A., ii, 705.
- Linseed cake and meal**. See Agricultural
chemistry.
- Linseed oil**, cements made from lime and
(DÖRNER), A., ii, 554.
constants of (GILL and LAMB), A.,
ii, 533.
examination of (HEHNER and MIT-
CHELL), A., ii, 190.
iodine number of (WIJS), A., ii, 711.
- Liparite magmas**, crystallisation of
(MOROZEWICZ), A., ii, 764.
- Lippia citriodora***, oil of (BARBIER), A.,
i, 769.
- Liquids**, kinetic theory of (JÄGER), A.,
ii, 404.
molecular weights of (SPEYERS), A.,
ii, 145.
hydrates of (VILLARD), A., ii, 151.
crystalline, dielectric behaviour of
(ABEGG and SEITZ), A., ii, 623.
extraction of, with ether, apparatus for
(FOERSTER), A., ii, 121; (BAUM), A.,
ii, 802.
non-miscible, distribution of a conso-
lute liquid between two (BANCROFT),
A., ii, 469.
racemic, characterisation of (KIPPING
and POPE), T., 1119; P., 1899,
200.
nature of (ROOZEBOOM; KIPPING and
POPE), A., ii, 733.
supercooled, velocity of solidification
of (WILDERMANN), P., 1899, 175.
weighing corrosive or fuming
(SCHWARTZ), A., ii, 802.
- Lithium**, spectrum of, in its fused salts
(GRAMONT), A., ii, 198.
ion velocity of, in flames (WILSON),
A., ii, 723.
absorption of nitrogen by mixtures of
magnesium, lime and (HEMPEL),
A., ii, 594.
- Lithium amalgams**, specific volumes of
(MALY), A., ii, 547.
- Lithium salts**, absorption of Röntgen
rays by (HÉBERT and REYNAUD), A.,
ii, 586.
- Lithamide** (MOISSAN), A., ii, 152, 153.
- Lithium ammonia** (MOISSAN), A., ii, 152.
arsenide, preparation of (LEBEAU),
A., ii, 655.
azoimide (CURTIUS and RISSOM), A.,
ii, 92.
cupric bromide (KURNAKOFF and
SEMENTSCHENKO), A., ii, 287.
carbide, formation of (MOISSAN), A.,
i, 241.
preparation and heat of formation
of; action of, on fused lithium
chloride (GUNTZ), A., ii, 24.
carbonate, reduction of, by aluminium
(FRANCK), A., ii, 102.
chloride, spark-spectrum of (GRA-
MONT), A., ii, 137.
transference ratio of, with various
septa (BEIN), A., ii, 399.
heat of dilution of (DUNNINGTON
and HOGGARD), A., ii, 728.
surface tension of solutions of
(LINEBARGER), A., ii, 469.
contraction of aqueous solutions of,
on dilution (WADE), T., 270; P.,
1899, 8.
densities and refractive indices of
solutions of (CONROY), A.,
ii, 717.
density of aqueous solutions of
(DE COPPET), A., ii, 590.
combination of, with methylamine
(BONNEFOI), A., i, 185.
ammonium chloride, dissociation of,
change of entropy in (MATIGNON),
A., ii, 273.
chlorides, ammoniacal, preparation of,
and heats of formation and solution
(BONNEFOI), A., ii, 96.
uranium chlorides and bromides
(ALOY), A., ii, 555.
lead iodide (MOSNIER), A., ii, 222.
nitrate, mixtures of, with sodium and
potassium nitrates, melting points
of (CARVETH), A., ii, 141.
oxide, heat of formation of (MOISSAN),
A., ii, 352.
phosphidate and molybdiodate
(CHRÉTIEN), A., ii, 363.
silicate, hydrolysis of, in alkaline
solution (KAHLENBERG and LIN-
COLN), A., ii, 95.
sulphate, galvanic polarisation in
solutions of (JAHN), A., ii, 542.
tungsten tungstate (HALLOPEAU), A.,
ii, 159.
peruranate, action of aluminium
hydroxide on (MELIKOFF and
PISSARJEWSKY), A., ii, 31.

Lithium organic compounds :—

- Lithium acetylde, ammonio-compound of (MOISSAN), A., i, 241.
 Lithiummethyl ammonium (MOISSAN), A., i, 410.
Litmus, use of, in alkalimetry (GLASER), A., ii, 573.
Liver, oxidising ferment of the (JACOBY), A., ii, 778.
Liver of molluscs, physiology of the (BIEDERMANN and MORITZ), A., ii, 438.
Liver of sulphur, estimation of silver and alkalis in (BARTHE), A., ii, 329.
Lonchidite. See Marcasite.
Lophophorine, physiological action of (DIXON), A., ii, 681.
Lornskite, from Finland (MELNIKOFF ; NIKOLAEFF), A., ii, 669.
Lubricants for glass stopcocks (PHILIPS), A., ii, 16.
Lucerne. See Agricultural chemistry.
Luminescence of organic compounds in the state of vapour (KAUFFMANN), A., ii, 464.
Luminosity of flames containing vaporised salts (SMITHELLS, DAWSON, and WILSON), A., ii, 722.
Luminous phenomena produced by ammonium salts and fused potassium nitrate (TOMMASI), A., ii, 483.
Lung, diffusion of gases through (HILL), A., ii, 437.
 cause of respiratory exchange in the (HARLEY), A., ii, 675.
Lupetidine. See 2:6-Dimethylpiperidine.
iso-Lupetidine, and salts (MARCUSE and WOLFFENSTEIN), A., i, 937.
Lupin. See Agricultural chemistry.
Lupulin, estimation of, in hops (LINTNER), A., ii, 264.
Lussatite from Moravia (Bavíř), A., ii, 671.
Luteolin, potassium derivative of (PERKIN), T., 441 ; P., 1899, 65.
 presence of, in *Genista tinctoria* and its tetracetyl compound and properties (PERKIN and NEWBURY), T., 831 ; P., 1899, 179.
Lutidine. See 2:6-Dimethylpyridine.
β-Lutidine. See 4-Ethylpyridine.
4-Lutidylhydrazine. See 2:6-Dimethylpyridine-4-hydrazine.
Lycerosazone (LOEW), A., i, 851.
Lycorine, from *Lycoris radiata*, and its physiological action (MORISHIMA), A., i, 92.
Lymph, properties and formation of (ASHER), A., ii, 165.
Lysine, preparation of (KOSSEL), A., i, 833.

M.

- Maclurin** (*pentahydroxybenzophenone*), action of potassium acetate on (PERKIN), T., 442 ; P., 1899, 66.
 action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
Magnas, formation of minerals in (MOROZEWICZ), A., ii, 762.
Magnesium, potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.
 absorption of nitrogen by mixtures of, with lime and sodium or lithium (HEMPEL), A., ii, 594.
 action of, on nitrogenous compounds, especially cyanides (EIDMANN), A., i, 317.
 action of, on solutions of its salts (LEMOINE), A., ii, 656.
 action of sulphur on (FRANCK), A., ii, 28.
 action of, on sulphuric acid (ADIE), P., 1899, 133.
 action of, on solutions of zinc, lead, or silver salts (BRYANT), A., ii, 289.
Magnesium alloy with calcium (MOISSAN), A., ii, 154.
Magnesium salts, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
 taste of (HÖBER and KIESOW), A., ii, 207.
Magnesium azoimide (CURTIUS and RISSON), A., ii, 92.
 carbide, formation of (MOISSAN), A., ii, 554.
 carbonate, hydrated from Lombardy (BRUGNATELLI), A., ii, 372.
 hydrogen carbonate (KIPPENBERGER ; TREADWELL), A., ii, 220.
 chloride, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 partition of water between sulphuric acid and (BUSNIKOFF), A., ii, 361.
 hydrates of (BOGORODSKY), A., ii, 656.
 absorption of water by, and hydrates of (BUSNIKOFF), A., ii, 409.
 ammonium or potassium chlorides, conductivities of solutions of (JONES and KNIGHT), A., ii, 628.
 ammonium chloride, dissociation of, change of entropy in (MATIGNON), A., ii, 273.
 hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 lead iodide (MOSNIER), A., ii, 222.
 molybdate (CHRÉTIEN), A., ii, 363.

- Magnesium nitrate**, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 hydrates of (FUNK), A., i, 209.
 oxide (*magnesia*), heat of formation of (MOISSAN), A., ii, 352.
 stability of, at high temperatures (RICHARDS), A., ii, 101.
 agents for removing, from natural waters (GRIFFIN), A., ii, 655.
 See Agricultural chemistry.
 ammonium phosphate, ignition of (MASTBAUM), A., ii, 55.
 pyrophosphate, and sodium and ammonium pyrophosphates (BERTHELOT and ANDRÉ), A., ii, 156.
 pentametaphosphimate (STOKES), A., ii, 93.
 phosphide (GAUTIER), A., ii, 484.
 sulphate, thermal change on diluting a saturated solution of (POLLOCK), P., 1899, 8.
 and nitrate, densities of, solutions of (BARNES and SCOTT), A., ii, 406.
 hydrated (VAN'T HOFF and DAWSON), A., ii, 759.
 sulphide, amorphous and crystalline (MOURLOT), A., ii, 27.
 ammonium sulphide (FRANKLIN and KRAUS), A., ii, 284.
 potassium paratungstate (HALLOPEAU), A., ii, 159.
- Magnesium, estimation and separation of** :—
 estimation of, in ashes (HAYWOOD), A., ii, 612.
 separation of manganese and alkaline earths from (VILLIERS), A., ii, 523.
- Magnesium-boracite** containing iodide (ALLAIRE), A., ii, 156.
- Magnetic** behaviour of iron-nickel alloys (OSMOND), A., ii, 352.
 field, influence of, on crystallisation (WRIGHT and KREIDER), A., ii, 265.
 properties of the elements (MEYER), A., ii, 587.
 properties of steel, effect of low temperatures on (OSMOND), A., ii, 630.
 rotation. See Photochemistry.
 susceptibility and permeability of liquid oxygen, and of manganous sulphate (FLEMING and DEWAR), A., ii, 544.
- Magnetite** from Lombardy (BRUGNATELLI), A., ii, 372.
 nickeliferous, from Ontario (MILLER), A., ii, 109.
- Magnet-radiometer** (TECLU), A., ii, 77.
- Magnochromite** from North Carolina (PRATT), A., ii, 495.
- Maize and maize cake**. See Agricultural chemistry.
- Maize oil** (*corn oil*), composition and properties of (HOPKINS), A., ii, 608.
 analytical results of (ARCHBUTT), A., ii, 711.
 iodine number of (ZEGA and MAJS-TOROVIC), A., ii, 820.
- Malachite** from Adamello mountains (RIVA), A., ii, 38.
 iodine in (AUTENRIETH; DIESEL-DORFF; OCHSENIUS), A., ii, 760.
 estimation of traces of iodine in (AUTENRIETH), A., ii, 804.
- Malachite-green-o-sulphonic acid**, (SUAS), A., i, 439.
- Maleamic acid**, methylic salt, formation of (HOOGWERFF and VAN DORP), A., i, 870.
- Maleic acid**, equilibrium between fumaric acid and, in presence of ammonia (BANCROFT), A., ii, 411.
 magnesium salt, dissociation of, in solution (CALAME), A., ii, 145.
 dibromo-, ethylic salt, hydrolysis; also action of ethylic sodiomalonate on (RUHEMANN and CUNNINGTON), T., 961; P., 1899, 185.
- Maleimide**, action of methylic alcohol on (HOOGWERFF and VAN DORP), A., i, 870.
- Malic acid**, reduction of, by *Bacillus lactis aerogenes* (EMMERLING), A., ii, 569.
 optical behaviour of derivatives of (WALDEN), A., ii, 539.
- Malic acid**, salts, composition and crystalline form of (TRAUBE), A., i, 484.
 mono-alkali salts, action of molybdic, tungstic, titanous, and stannous oxides on (HENDERSON, ORR, and WHITEHEAD), T., 548; P., 1899, 107.
 copper salt, dissociation of, in solution (CALAME), A., ii, 145.
 silver salt, action of ethylic, isobutylic and secbutylic iodides on (PURDIE and PITKEATHLY), T., 154; P., 1899, 6.
 ethereal salts, specific rotations and molecular volumes of (FRANKLAND), T., 348, 349.
 ethylic salt, action of ethylic iodide on, in the presence of lead oxide, of mercuric oxide, and of silver oxide (PURDIE and PITKEATHLY), T., 157; P., 1899, 6.
 methylic salt, cryoscopic behaviour of, in dimethylic succinate (BRUNI and GORNI), A., ii, 731.

- Malic acid**, methylic and ethylic salts, preparation and specific rotations of (FRANKLAND and WHARTON), T., 338; P., 1899, 26.
 detection of, in grapes (GIRARD and LINDER), A., ii, 454.
 estimation of, in presence of oxalic and citric acids (KISSLING), A., ii, 821.
- Malic acid**, chloro-, optical isomerism of (WALDEN), A., ii, 393.
- Malonamide**, mercury compound of, constitution of (KIESEITZKY), A., ii, 395.
dichloro-, from action of ammonia on ethylic *tetrachloroacetonedicarboxylate* (DOOTSON), T., 171; P., 1899, 9.
- Malonic acid**, action of pyruvic acid on (GARZAROLLI-THURNLACKH), A., i, 790.
 condensation of sodium derivative of, with ethylic *isopropylenemalonate* (LAWRENCE), P., 1899, 62.
- Malonic acid**, potassium salt, heat of formation of (MASSOL), A., ii, 80.
l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
 ethylic salt, determination of the molecular weight of the sodium derivative of (VORLÄNDER and SCHILLING), A., i, 672.
 action of acetylene *tetrabromide* on, in presence of sodium ethoxide (CROSSLEY), P., 1898, 248.
 condensation of, with aldehydes under the influence of ammonia and organic amines (KNOEVEN-AGEL), A., i, 116.
 action of aluminium amalgam on (TISTSCHENKO), A., i, 408.
 action of bromoacetal on the sodium derivative of (PERKIN and SPRANKLING), T., 13; P., 1898, 112.
 action of *di*bromo- β -dimethyltrimethylene, *di*bromotrimethyl-ethylene and *di*bromo*isobutylene* on the sodium derivative of (IPATIEFF), A., i, 481.
 action of cyanogen on (TRAUBE), A., i, 193.
 action of diethylamine and formaldehyde on (KOMPPA), A., i, 416.
 action of β -diethyltrimethylenic bromide on the sodium derivative of (IPATIEFF), A., i, 673.
 action of ethylenic oxide and epichlorhydrin on the sodium derivative of (TRAUBE and LEHMANN), A., i, 417.
- Malonic acid**, ethylic salt, action of ethylic bromo*isobutyrate* on the sodium derivative of (BONE), P., 1899, 5.
 condensation of ethylic bromopropionate and bromo*isobutyrate* with the sodium derivative of (BONE and SPRANKLING), T., 849.
 condensation of, with ethylic *isobutylideneacetoacetate* (BARBIER and GRIGNARD), A., i, 112.
 action of ethylic chloroglyoxylate on the sodium derivative of (BOUVEAULT), A., i, 416.
 condensation of, with ethylic β -chloro*isovalerate* (MONTEMARTINI), A., i, 420.
 condensation of the sodium compound with ethylic cyanoformate (RUHEMANN and CUNNINGTON), T., 786; P., 1899, 169.
 action of sodium derivative on ethylic *di*bromomaleate and *di*-bromocinnamate (RUHEMANN and CUNNINGTON), T., 961; P., 1899, 185.
 condensation of, with indones and with quinones (LIEBERMANN), A., i, 522.
 action of mesityl oxide on the sodium derivative of (CROSSLEY), P., 1898, 247; P., 1899, 52.
 action of phorone, pulegone, and methylcyclohexenone on the sodium derivative of (VORLÄNDER and GÄRTNER), A., i, 259.
 action of sodium on (WILLSTÄTTER), A., i, 576.
 methylic salt, action of methylic dichloroxalate on the sodium derivative of (ANSCHÜTZ and CLARKE), A., i, 577.
 and ethylic salt, action of bisdiazochlorides of benzidine, *o*-tolidine and dianisidine on (FAVREL), A., i, 521.
- Malonic acid**, bromo- and chloro-, ethylic salts, action of potassium carbonate on (BLANK and SAMSON), A., i, 484.
dichloro-, potassium salt, from action of potash on ethylic *tetrachloroacetonedicarboxylate* (DOOTSON), T., 170; P., 1899, 9.
dicyano- (*cyaniminoisossuccinic acid*), ethylic salt (TRAUBE), A., i, 193.
 imino-, ethylic salt (HESSLER), A., i, 900.
- Malonic acids**, substituted, melting points of (SOLONINA), A., ii, 633.
 solubility of (MASSOL and LAMOUROUX), A., i, 479.

- Malonic aldehyde**, nitro-, and its aniloxime (HILL and TORREY), A., i, 788, 789.
- Malonic dialdoxime**, nitro-, sodium and silver derivatives (HILL and TORREY), A., i, 789.
- Malonimide**, formation of (MATHEWS), A., i, 56.
- Malonodiethylamide**, from action of ethylamine on ethylic isoaconitate (GUTHZEIT and LASKA), A., i, 260.
- Malonyl-phenetidine and -diphenetidine** (BISCHOFF), A., i, 280.
- Malt**. See Agricultural chemistry.
- Maltobionic acid**, hydrolysis of, with oxalic acid (BROWN and MILLAR), T., 307; P., 1899, 12.
- Maltodextrin** and its oxidation products and constitution (BROWN and MILLAR), T., 286; P., 1899, 11.
- nitration and attempted recovery of (BROWN and MILLAR), T., 312; P., 1899, 13.
- Maltodextrinic acids**, A- and B-, and their hydrolysis; also their calcium salts (BROWN and MILLAR), T., 296; P., 1899, 12.
- Maltose**, from action of diastase on dextrinic acid (BROWN and MILLAR), T., 330; P., 1899, 14.
- from diastasic hydrolysis of maltodextrinic acid A; also its hydrolysis (BROWN and MILLAR), T., 297; P., 1899, 12.
- formation of, by takadiastase (STONE and WRIGHT), A., i, 95.
- conversion of dextrin into (PETIT), A., i, 559.
- velocity of hydrolysis of, by different acids (SIGMOND), A., ii, 146.
- action of alkalis on (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 661.
- action of yeast enzymes on (KALANTHAR), A., i, 102.
- nitration and attempted recovery of (BROWN and MILLAR), T., 313.
- detection of (GAWALOWSKI), A., ii, 255.
- estimation of, in brewing sugars (MORRIS), A., ii, 187.
- estimation of mannose in presence of (BOURQUELOT and HÉRISSEY), A., ii, 817.
- Malyi-anilide**, and -o-, -m-, and -p-toluides, specific rotations of (GUYE and BABEL), A., ii, 719.
- Mandarins**, oil of, composition of (FLATAU and LABBÉ), A., i, 442.
- Mandelamide**, synthesis of (MINOVIĆ), A., i, 890.
- Mandelanilide**, formation of (LAMB-LING), A., i, 52.
- Mandelic acid** (*α*-hydroxyphenylacetic acid; *phenylglycollic acid*), and its sodium salt, influence of dilution on rotatory power of (RIMBACH), A., ii, 345.
- resolution of, and alkaloidal and metallic salts (MCKENZIE), T., 964; P., 1899, 186.
- phenylurethane, and its ethylic salt (LAMB-LING), A., i, 52.
- p*-bromo-, and *p*-chloro- (COLLET), A., i, 699.
- d*-Mandelic acid, and sodium salt, solutions of, specific rotation and dissociation of (MCKENZIE), T., 768; P., 1899, 150.
- action of boiling potash, and of hydrochloric acid on (HOLLEMAN), A., i, 282.
- l*-Mandelic acid, specific rotation of (MCKENZIE), T., 757.
- i*-Mandelic acid, ethylic salt, preparation of (MCKENZIE), T., 755.
- d*- and *l*-Mandelic acids, and cinchonine salts, specific rotations of (RIMBACH), A., i, 895.
- r*-, *l*-, and *d*-Mandelic acids, etherification of, by *l*-menthol (MARCKWALD and MCKENZIE), A., ii, 733.
- Mandelonitrile** phenylurethane (LAMB-LING), A., i, 53.
- condensation of, with phenols (BISTRZYCKI and SIMONIS), A., i, 153.
- Manganese**, presence of, in animals and plants (PICHARD), A., ii, 40.
- influence of, on the phosphorescence of strontium sulphide (MOURELO), A., ii, 484.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- Manganese salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- Manganese antimonate** (SENDERENS), A., ii, 557.
- and manganese potassium thioantimonites (POUGET), A., ii, 663.
- arsenite (REICHARD), A., ii, 23.
- azoimide, basic (CURTIUS and RISSOM), A., ii, 92.
- iron carbides (CARNOT and GOUTAL), A., ii, 293.
- carbonate in oceanic deposits (HARTLEY), A., ii, 437.
- chloride, transition temperature of (RICHARDS and BRIGGS), A., ii, 355.
- molecular weight of, in urethane (CASTORO), A., ii, 360.

- Manganese chloride**, hydrates of (KUZNETZOFF), A., ii, 658.
- hydroxide, equilibrium between ammonium salts and (HERZ), A., ii, 752.
- tetrioate, compounds of, with potassium, ammonium, and barium iodates, and manganosomanganic iodate (BERG), A., ii, 426.
- lead iodide (MOSNIER), A., ii, 222.
- molybdiolate (CHRÉTIEN), A., ii, 363.
- nitrate, hydrates of (FUNK), A., ii, 210.
- oxide, reduction of, by aluminium (FRANCK), A., ii, 103.
- Manganates**, estimation of manganese in (REICHARD), A., ii, 813.
- Permanganate**, estimation of nitrite by (DARBOIS), A., ii, 745.
- dihydrogen phosphate, decomposition of, by water (VIARD), A., ii, 752.
- silicide (WARREN), A., ii, 158.
- silico-carbonates from the Hautes Pyrénées (LIENAU), A., ii, 761.
- sulphate, magnetic and paramagnetic susceptibility of (FLEMING and DEWAR), A., ii, 544.
- action of periodates on (PÉCHARD), A., ii, 477.
- cæsium alum (PICCINI), A., ii, 367.
- potassium paratungstate (HALLOPEAU), A., ii, 160.
- Manganese organic compounds** :—
- Manganese dithionate phenylhydrazine** (MOITTESSIER), A., i, 688.
- dipyridine, and diquinoline chlorides (REITZENSTEIN), A., i, 163.
- Manganese**, estimation and separation of :—
- estimation of (MURMANN), A., ii, 126 ; (VITALI), A., ii, 251.
- estimation of, by arsenious acid (REICHARD), A., ii, 813.
- estimation of, by permanganate (DAW ; BREARLEY), A., ii, 334.
- estimation as pyrophosphate (GOOCH and AUSTIN), A., ii, 128.
- estimation of, in ores (LEHNKERING), A., ii, 251.
- separation of iron from (BREARLEY), A., ii, 815.
- separation of magnesium and the alkaline earths from (VILLIERS), A., ii, 523.
- separation of mercury from (JANNASCH and ALFFERS), A., ii, 60.
- Manganese-boracite** containing iodide (ALLAIRE), A., ii, 156.
- Manganese-steel**, effect of low temperatures on magnetic properties of (OSMOND), A., ii, 630.
- Manganosite** from Sweden, origin of (SjÖGREN), A., ii, 760.
- Mangelwurz**. See Agricultural chemistry.
- Mannitol**, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- condensation of, with benzaldehyde (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- action of hydrogen dioxide on, in presence and absence of iron (FENTON and JACKSON), T., 8 ; P., 1898, 240.
- Mannose**, preparation of, by action of hydrogen peroxide on mannitol, in presence of iron (FENTON and JACKSON), T., 9 ; P., 1898, 240.
- estimation of, in presence of galactose, arabinose, maltose, or dextrin (BOURQUELOT and HÉRISSEY), A., ii, 817.
- Manures**, estimation of nitrates in (ACKERMANN), A., ii, 329.
- estimation of phosphoric acid in (VIGNON ; LASNE), A., ii, 54 ; (LITTMAN), A., ii, 330.
- estimation of citrate soluble phosphoric acid in (BÖTTCHER), A., ii, 55.
- estimation of potassium in (EGGERTZ and NILSON), A., ii, 384 ; (BELL), A., ii, 809.
- See also Agricultural chemistry.
- Marcasite** (*lonchidite*) from Olkusch (ANTIPOFF), A., ii, 109.
- from Poland (ANTIPOFF), A., ii, 667.
- Mars**, estimation of mercury and copper in (VIGNON and BARRILLOT), A., ii, 452.
- Marekanite-obsidian** from Nicaragua (PETERSEN), A., ii, 38.
- Margarine**, adulteration of, by paraffin (GEISLER), A., ii, 710.
- detection of sesame oil in (SOLTSIEN), A., ii, 71.
- examination of, cryoscopically (POURET), A., ii, 710.
- Mariposite** from California (TURNER), A., ii, 37.
- Marl** from New South Wales (MINGAYE), A., ii, 670.
- estimation of calcium carbonate in (MAYER), A., ii, 385.
- estimation of carbonic anhydride in (SCHENKER), A., ii, 809.
- Maté**, composition of (POLENSKE and BUSSE), A., ii, 608.
- Matico oils**, composition of (SCHIMMEL and Co.), A., i, 299.
- Meat**, estimation of phosphoric acid in (NEUMANN), A., ii, 54.
- estimation of sugar in (POLENSKE), A., ii, 186.
- Meat extracts**, estimation of glycogen in (LEBBIN), A., ii, 256.

- Meconic acid and Meconine**, detection of (SEYDA), A., ii, 344.
- Melanin**, of the retina, constitution of (LANDOLT), A., ii, 777.
from horse-hair, and its oxidation products (JONES), A., i, 396.
- Melanins** (JONES), A., ii, 439.
formation of, from proteids by hydrolysis (CHITTENDEN and ALBERO), A., i, 468.
- Melanurenic acid**. See Ammelide.
- Meldola's blue**, chloro- (JAUBERT), A., i, 684.
- Melibiose**, action of alkalis on (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 661.
action of yeast enzymes on (KALANTHAR), A., i, 102.
- Mellicitose**, action of yeast enzymes on (KALANTHAR), A., i, 102.
- Melissa oil** (FLATAU and LABBÉ), A., i, 534.
- Melitriose**. See Raffinose.
- Mellitic acid**, sodium salt, freezing point of aqueous solutions of (TAYLOR), A., ii, 7.
- Melting point**, determination of, by Holborn and Wien's method (LADENBURG and KRÜGEL), A., ii, 545.
effect of pressure on (HULETT), A., ii, 469; (TAMMANN), A., ii, 635.
of organic substances and number of carbon atoms in molecule, relationship between (SOLONINA), A., ii, 633.
of racemic compounds, pseudoracemic mixtures, and inactive conglomerates (ROOZEBOOM), A., ii, 401.
of fats, determination of (LE SUEUR and CROSSLEY), A., ii, 271.
of fats and waxes, determination of (DOWZARD), A., ii, 725.
- Melting point curves** of mixtures of two different compounds, and of optical isomerides (CENTNERSZWER), A., ii, 725.
of racemic compounds (ROOZEBOOM), A., ii, 276.
of mixtures of tautomeric compounds (ROOZEBOOM), A., ii, 355.
- Membranes**, semi-permeable, utility of (MORITZ), A., ii, 721.
- cis-Menthane-6 : 8-diol**, 1 : 2-dichloro- (WAGNER and SLAWINSKI), A., i, 767.
- Menthane-1 : 2 : 6 : 8-tetrol**. See *cis*-Sobrerithritol.
- Menthene**, from oil of thyme (LABBÉ), A., i, 621.
- Menthol**, in French peppermint (CHARABOT), A., i, 442.
melting point of, influence of pressure on (HULET), A., ii, 469.
- Menthol**, solid solutions of, in thymol (GARELLI and CALZOLARI), A., ii, 732.
velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
crystalline modifications of (POPE), T., 464.
hylotropic-isomeric forms of (SCHAUM), A., ii, 733.
methylenic acetal of (BROCHET), A., i, 530.
organic salts of, optical activity and molecular volume of (TSCHUGÁEFF), A., ii, 3.
- Menthone** in French peppermint (CHARABOT), A., i, 442.
- α -Menthone**, from Bourbon geranium essence (FLATAU and LABBÉ), A., i, 621.
- Mercaptans**. See :—
Amyl mercaptan.
Benzyl mercaptan.
Ethoxyphenyl mercaptan.
Ethyl mercaptan.
Methoxyphenyl mercaptan.
Methylethylazoly- μ -mercaptan.
Methylmercaptothiazoline.
Propyl- β -mercaptan.
Xylyl mercaptan.
- μ -Mercapto- β -methyl- α -ethylthiazoline**.
See μ -Sulphydro- β -methyl- α -ethylthiazoline.
- Mercaptothiazoline**, action of hydrochloric acid on (GABRIEL and LEUPOLD), A., i, 104.
- Mercury**, purification of (PALMAER), A., ii, 485.
vapour, spectrum of (FABRY and PEROT), A., ii, 461.
cathodes, pulverisation of during electrolysis (BREDIG and HABER), A., ii, 78.
effect of pressure on melting point curve of (TAMMANN), A., ii, 636.
vapour pressure of (YOUNG), A., ii, 633.
action of, on sulphuric acid (ADIE), P., 1899, 133.
aluminium couple, use of, as a condensing agent (COHEN and SKIRROW), T., 887; P., 1899, 183.
solution of barium in (SCHOELLER), A., ii, 347.
metallic, solubility of, in the body juices (CHITTENDEN), A., ii, 311.
- Mercury alloys (amalgams)** of different concentration, potential difference between (SCHOELLER), A., ii, 346.
with calcium (MOISSAN), A., ii, 154; (FÉRÉE), A., ii, 155.
with lithium, sodium, or potassium, specific volumes of (MAEY), A., ii, 547.

- Mercurammonium** chlorides, and their constitution (HOFMANN and MARBURG), A., i, 486; (PESCI), A., ii, 750.
- Diammoniomercuric iodide, dissociation of, and Tetrammoniotrimeric iodide (FRANÇOIS), A., ii, 657.
- Dihydroxymercuriammonium hydroxide, and the action of light and ammonia on it; also its nitrate, bromide, and chloride, and its dehydration (HOFMANN and MARBURG), A., i, 487.
- Mercury salts**, diffusion of light by solutions of (SPRING), A., ii, 585.
- absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- haloid, solubility of, in alcohols (ROHLAND), A., ii, 144.
- action of antimony trioxide on (HARDING), A., ii, 490.
- action of hydrogen on (COLSON), A., ii, 485.
- reduction of, by calcium carbide (TARUGI), A., ii, 749.
- estimation of, by alkalimetry (LESŒUR), A., ii, 183.
- Mercuric salts**, solutions of, action of potassium thioantimonite on (POUGET), A., ii, 663.
- Mercuric antimonate** (SENDERENS), A., ii, 557.
- arsenide and *mono*-, *di*-, and *tri*-chloro-mercurarsine (PARTHEIL and AMORT), A., ii, 417.
- arsenite (REICHARD), A., ii, 23.
- perchlorate* and *nitrate*, solutions of (LEY and KISSEL), A., ii, 486.
- chloride, molecular weight of, in urethane (CASTORO), A., ii, 360.
- solutions of, in various solvents, conductivity of (KAHLENBERG and LINCOLN), A., ii, 397.
- distribution ratio of, between water and toluene (BROWN), A., ii, 83.
- reactions of, in organic solvents (NAUMANN), A., ii, 423.
- action of ammonia on, in presence and absence of ammonium chloride (HOFMANN and MARBURG), A., i, 486.
- double compound of, with ammonium nitrate (HOFMANN and MARBURG), A., i, 487.
- compounds of, with mercuric phosphide (GÖTTIG), A., i, 657.
- ammonium chloride, conductivity of aqueous solutions of (JONES and OTA), A., ii, 587.
- magnesium, strontium, and barium chlorides (SWAN), A., i, 39.
- Mercuric oxychloride**, hydrated (RÂY), P., 1899, 103.
- iodide, sublimation of (GERNEZ), A., ii, 597.
- equilibrium between mercury, mercurous iodide, and (FRANÇOIS), A., ii, 751.
- ammonium and potassium double iodides, action of water on (FRANÇOIS), A., ii, 597.
- nitrate, action of acetylene on (ERDMANN and KÖTNER), A., i, 21; (HOFMANN), A., i, 97.
- nitrite, action of sodium or silver nitrite on (RÂY), P., 1899, 103.
- hyponitrite (DIVERS), T., 119; P., 1898, 224.
- oxide, dissociation of (PÉLABON), A., ii, 423.
- decomposition of, by action of light (BERTHELOT), A., ii, 2.
- yellow, action of ammonia on (HOFMANN and MARBURG), A., i, 487.
- action of chlorine on, in water (FOERSTER and YORRE), A., ii, 281.
- phosphide, compounds of, with mercuric chloride (GÖTTIG), A., i, 657.
- sulphide, red, formation of, in the wet way (ALVISI), A., ii, 486.
- Mercurous salts**, structure of (OGG), A., ii, 14.
- Mercurous iodide**, action of potassium iodide on, and formation of, from mercuric iodide in potassium iodide (FRANÇOIS), A., ii, 751.
- nitrate, solution of, change of concentration of, in mercury dropping electrode (PALMAER), A., ii, 347.
- equilibrium in systems containing silver nitrate, silver amalgam, and; or mercury, mercuric nitrate and (OGG), A., ii, 14.
- nitrite, action of sodium or silver nitrite on (RÂY), P., 1899, 103.
- hyponitrite (DIVERS), T., 120; P., 1898, 224.
- oxide, decomposition of, by action of light (BERTHELOT), A., ii, 2.
- Mercury organic compounds** :—
- Mercury, compounds of, with organic bases (PESCI), A., i, 430.
- Dimercuracetic acid, trimercuracetic acid, and hydroxydimercuracetic acid (HOFMANN), A., i, 486.
- Dimercurioacetanilide, di-, tri-, and tetra-mercuriobenzene hydroxides and acetates (PESCI), A., i, 908.
- Mercury dimethyl, action of the silent electric discharge on, in presence of argon and nitrogen (BERTHELOT), A., i, 871.

Mercury organic compounds :—

Mercurydimehyl, action of nitrogen peroxide on (BAMBERGER), A., i, 263.
o-diphenetyl (DIMROTH), A., i, 429.
 diphenyl, action of the silent electric discharge on, in presence of argon (BERTHELOT), A., i, 871.

Mercuric chloride, compounds of, with diazobenzenesulphonic acid, ethylamine, dimethylamine, trimethylamine, and hydrazine (HOFMANN and MARBURG), A., i, 487.

cyanide, action of ammonia on, and double ammonio-compounds of, with zinc chloride and bromide, cupric chloride and bromide, and cadmium bromide and iodide (VARET), A., i, 99.

compound of, with diazobenzenesulphonic acid (HOFMANN and MARBURG), A., i, 487.

double salts of, with mercuric chloride, bromide, nitrate, and acetate; also the action of caustic alkali on it, and its estimation (PRUSSIA), A., i, 318.

distinction between oxycyanide and (VON PIEVERLING), A., ii, 698.

chlorocyanide, action of ammonia on (VARET), A., i, 99.

potassium cyanide, action of hydrogen sulphide or sodium sulphide on (BERTHELOT), A., ii, 422.

fulminate detonators, ammonium perchlorate in (ALVISI), A., ii, 748.
 sulphate, compound of, with acetone (DENIGÈS, A., i, 22; (OPPENHEIMER), A., i, 475.

Mercurio- α -acetnaphthalide (PRUSSIA), A., i, 361.

p-Mercuriodiphenylamine (PRUSSIA), A., i, 361.

p-Mercuriodiphenylenediphenyldimethylmercuriodiammonium hydroxide, and acetate (GARBARINI), A., i, 362.

p-Mercuriodiphenylenediphenylmercuriodiammonium hydroxide, and its salts (PRUSSIA), A., i, 361.

Mercuriomethaceticin (PRUSSIA), A., i, 361.

Mercuriphenylsulphide, thiocarbonate and thiosulphate (PESCI), A., i, 816.

Mercuriocarbide nitrate, from the action of acetylene on mercuric nitrate (ERDMAN and KÖTHNER), A., i, 21; (HOFMANN), A., i, 97.

Phenylenedimercuric diacetate (DIMROTH), A., i, 428.

Phenylmercuric acetate (DIMROTH), A., i, 54, 428.

Mercury organic compounds :—

o-Phenylmercuric oxide (DIMROTH), A., i, 429.

Phenylmercurargon (BERTHELOT), A., ii, 653.

Substance, $C_2H_2O_2Cl_2HgK_2$, from action of mercuric oxide on potassium chloracetate (HOFMANN), A., i, 486.

$C_2H_5NHg_2$, from action of nitric acid on substance ($C_2Hg_2O_3H_2$)_x, and on hydroxydimercuracetic acid (HOFMANN), A., i, 486.

($C_2H_2O_3Hg_2$)_x, from action of mercuric oxide and alkali on sodium acetate (HOFMANN), A., i, 486.

$C_2H_3O_2Cl_2Hg_2$, from action of hydrochloric acid on hydroxydimercuracetic acid (HOFMANN), A., i, 486.

$C_2Cl_4Hg_3$, from action of acetylene on a solution of mercuric and sodium chlorides (HOFMANN), A., i, 486.

$C_2HO_3IHg_3$, from action of mercuric iodide on sodium acetate in presence of alkali, and its sodium salt (HOFMANN), A., i, 486.

$C_2H_3O_7NHg_3$, from action of silver nitrate on substance $C_2Hg_3IO_3H$ (HOFMANN), A., i, 486.

$C_2H_3O_7SHg_3$, from action of mercuric sulphate on acetaldehyde (DENIGÈS), A., i, 414.

$C_2Cl_4Hg_4$, from action of mercuric chloride on alcohol in presence of sodium ethoxide or sodium acetate (HOFMANN), A., i, 485.

$C_2H_2O_4Hg_6$, from action of mercuric oxide and alkali on substance $C_2Cl_4Hg_4$ (HOFMANN), A., i, 486.

Mercury, estimation and separation of :—

assay of (CHISM), A., ii, 813.

estimation of, by sodium arsenite (REICHARD), A., ii, 183.

estimation of, in presence of cadmium or iron (KOLLOCK), A., ii, 811.

estimation of, in grapes, wines, lees, and marcs (VIGNON and BARRILLOT), A., ii, 452.

estimation of, in organic liquids (GAYON and LABORDE), A., ii, 385.

estimation of, in presence of platinum, copper, zinc, nickel, or cobalt (KOLLOCK), A., ii, 811.

separation of aluminium, chromium, cobalt, manganese, molybdenum, nickel, and tungsten from (JANNASCH and ALFFERS), A., ii, 59.

Mercury, separation of:—

separation of antimony, arsenic, bismuth, cadmium, copper, lead, antimony, and tin from (JANNASCH and DEVIN), A., ii, 59.

separation of copper from (REVAY), A., ii, 127.

Mesaconic acid, formation of, from ethylic γ -dibromo- α -methylacetate (CONRAD), A., i, 481.

and its conversion into itaconic acid (FITTIG and LANGWORTHY), A., i, 332.

oxidation of (FITTIG and KÖHL), A., i, 418.

compound of, with sulphuric acid (HOOGWERFF and VAN DORP), A., i, 672.

Mesitoyl chloride (WEILER), A., i, 704.

Mesitoylmesitylene, reduction of (WEILER), A., i, 703.

Mesitylaldehyde, formation of, from ω -nitromesitylene (KONOWALOFF), A., i, 874, 891.

ω -Mesitylamine, and salts (KONOWALOFF), A., i, 874.

3'-Mesitylazo-1:3-dimethylindazole (BAMBERGER), A., i, 544.

Mesityl chloromethyl ketone (COLLET), A., i, 56.

Mesitylene (1:3:5-trimethylbenzene), formation of (KLAGES and LICKROTH), A., i, 598.

boiling point, and melting point of (LADENBURG and KRÜGEL), A., ii, 545.

ω -nitro-, and metallic derivatives; ω :2-dinitro-, and trinitro-, and heats of combustion (KONOWALOFF), A., i, 874.

Mesitylenic acid (3:5-dimethylbenzoic acid), formation of (BAMBERGER and WEILER), A., i, 124.

and ω -nitro-, formation of, from ω -nitromesitylene (KONOWALOFF), A., i, 874.

Mesitylgyoxylie acid, formation of (NOYES), A., i, 286.

Mesitylnitrimine and action of hydrochloric acid on it (HARRIES and GLEY), A., i, 567.

Mesitylol carbanilate (AUWERS), A., i, 343.

Mesityl oxide (methyl isobutenyl ketone, isopropylideneacetone), specific heat and heat of vaporisation of (LUGNIN), A., ii, 269.

action of ethylic sodiomalonate on (CROSSLEY), P., 1898, 247; P., 1899, 52.

condensation of, with ethylic malonate (VORLÄNDER), A., i, 345.

Mesityl oxide (methyl isobutenyl ketone, isopropylideneacetone), action of sodium hydrogen sulphite on (HARRIES), A., i, 566.

semicarbazone of, an isomeric form of (HARRIES and KAISER), A., i, 638.

Mesityloxidoxalic acid, ethylic salt, velocity of isodynamic change of, in different solvents (BRÜHL), A., ii, 735.

Mesityloximes, stereoisomeric, and action of phosphorus pentachloride, water, potash, and isoamylic nitrite on; also the hydrobromides, sodium, acetyl and benzoyl derivatives and benzylic ethers (HARRIES and GLEY), A., i, 566.

Mesoxalic acid, methylamide, and phenylhydrazone, preparation of, from allocaffuric acid (TORREY), A., i, 86.

Metabolism, influence of diphtheria toxin on (NOËL-PATON, DUNLOP, and MACADAM), A., ii, 602.

during inanition (SCHULZ), A., ii, 773.

influence of removal of the large intestine on (HARLEY), A., ii, 774.

influence of the kidney on (BRADFORD), A., ii, 310.

inorganic, effect of organic foods on (PUGLIESE), A., ii, 40.

of phosphorus (ZADIK), A., ii, 774.

during pregnancy (CHARRIN and GUILLEMONAT), A., ii, 773.

of the submaxillary gland (HENDERSON), A., ii, 774.

of fishes (KNAUTHE), A., ii, 310.

human, influence of alcohol on (WENDELESTADT), A., ii, 602.

effects of the grape cure on (LAQUER), A., ii, 773.

of normal and atrophic infants (RUBNER and HEUBNER), A., ii, 775.

Metal, Rose's, cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.

Metallic chlorides, bromides, iodides, sulphides, chromates, and borates, precipitation of, in liquid ammonia (FRANKLIN and KRAUS), A., ii, 284.

halogen salts (THOMAS), A., ii, 278; (TASSILLY), A., ii, 747.

hydroxides, "condensed" (SCHLUMBERGER), A., ii, 596.

phosphides (GRANGER), A., ii, 286.

sulphides (MOURLLOT), A., ii, 747.

thiophosphates (FERRAND), A., ii, 747.

Metals, detection of, in foods by Kjeldahl's process (HALENKE), A., ii, 696.

estimation of arsenic in (DUCRU), A., ii, 124.

Metargon (RAMSAY), A., ii, 211.

preparation of (RAMSAY and TRAVERS), A., ii, 746.

- Metargon**, position of, in periodic system (CROOKES), A., ii, 552; (HOWE), A., ii, 740.
- Meteoritic iron**, analysis of (SjÖSTRÖM), A., ii, 674.
- Meteorite minerals**. See Bronzite, Cohenite, Kamacite, Taenite.
- Meteorite** from Beaconsfield, Victoria (COHEN), A., ii, 113.
 from Campo del Cielo, Argentina (COHEN), A., ii, 307.
 from Chesterville, South Carolina (COHEN), A., ii, 307.
 from Coahuila, Mexico (DAVISON), A., ii, 308.
 from Iquique, Peru (COHEN), A., ii, 307.
 from Kokomo, Indiana (COHEN), A., ii, 307.
 from Linnville mountain, North Carolina (COHEN), A., ii, 307.
 from Long Creek, Tennessee (COHEN), A., ii, 307.
 from Magura, Hungary (COHEN), A., ii, 674.
 from Meuselbach, Thuringia (LINCK), A., ii, 566.
 from Mighei, Russia (MELIKOFF and KRSHISCHANOWSKY), A., ii, 770.
 from Migheja (MELIKOFF and KRSHISCHANOWSKY), A., ii, 230.
 from Rasgata, Colombia, South America (COHEN), A., ii, 307.
 from San Cristobal, Chili (COHEN), A., ii, 113.
 from Santa Rosa, Colombia, South America (COHEN), A., ii, 307.
 from Shingle Springs, California (COHEN), A., ii, 674.
 from Siratik, West Africa (COHEN), A., ii, 307.
 from Tocavita, Colombia, South America (COHEN), A., ii, 307.
 from Toluca, Mexico (DAVISON), A., ii, 308.
 from Tombigbee River, Alabama (FOOTE), A., 771.
 from Zavid, Bosnia (HÖDLMOSE), A., ii, 674.
 from Zmjenj, Russia (MELIKOFF), A., ii, 771.
- Meteorites**, origin of gases evolved on heating (TRAVERS), A., ii, 769.
 platinum and iridium in (DAVISON), A., ii, 308.
- Methane** in metalliferous mines (NORDENSTRÖM), A., ii, 370.
 boiling point of (LADENBURG and KRÜGEL), A., ii, 545.
 compressed, solution of solids and liquids in (VILLARD), A., ii, 143.
- Methane**, solubility of, in amyl alcohol (FRIEDEL and GORGEU), A., ii, 182.
 inflammability of mixtures of, with oxygen (EMICH), A., ii, 13.
 action of ozone on (OTTO), A., ii, 282.
 absorption of, by fuming sulphuric acid (WORTALL), A., ii, 527.
 estimation of, by combustion (DENNIS and HOPKINS), A., ii, 332.
 estimation of, in presence of hydrogen and nitrogen (JAEGER), A., ii, 526.
- Methane**, bromonitro-, condensation of, with formaldehyde, acetaldehyde, and piperidylcarbinol (MAAS), A., i, 322.
 bromoisnitro-, bromo-*iso*-*dinitro*-, and *dibromoisnitro*- (HANTZSCH and VEIT), A., i, 401, 403.
tetrachloro-. See Carbon tetrachloride.
 fluorodibromo-, from decomposition of fluorodibromacetic acid (SWARTS), A., i, 254.
 nitro-, electrolytic reduction of (PIERRE), A., i, 844.
 isonitro- (HANTZSCH and VEIT), A., i, 401.
 iso-*dinitro*-, molecular conductivity and dissociation constant of; also its potassium salt (HANTZSCH and VEIT), A., i, 403.
 tri- and tetra-nitro-, action of potash on (HANTZSCH and RINCKENBERGER), A., i, 404.
 dithiocyano- (*methylene thiocyanate*), action of, on ethylic cupracetoacetate (KÖHLER), A., i, 737.
- Methanedisulphonic acid**, from action of sulphuric acid on acetamide (BAGNALL), T., 1899, 279.
 bromo-, barium salt, formation of (KÖHLER), A., i, 489.
- Methanepropylic alcohol disulphide**, imino-, hydrochloride of, from reduction of $\alpha\beta$ -dithiocyanhydrin (ENGLE), A., i, 3.
- Methanetricarboxylic acid**, ethylic salt, formation of (BOUVEAULT), A., i, 416.
- Methanetrisulphonic acid**, and metallic and aniline salts (BAGNALL), T., 1899, 278; P., 1898, 182.
- Methebenine** (*thebenine methylic ether*), properties of; its diacetyl, and methinemethiodide derivatives (FREUND), A., i, 307.
- Methebenol** (FREUND), A., i, 308.
- o*-**Methenylaminophenol**, chloro- and bromo-, and its salts (McCoy; STIEGLITZ), A., i, 359.
- Methenyl- β -*o*-aminophenyl-benzimidazole**, and -*m(p)*-tolimidazole (VON NIEMENTOWSKI), A., i, 645.

- Methenyl- β -*o*-amino-*p*-tolyl-benzimidazole**, and -*m*(*p*)-tolimidazole (VON NIEMENTOWSKI), A., i, 646.
- Methenylbismalonic acid**. See Dicarboxyglutaconic acid.
- Methoximidoxazolone**, change of, into methylglyoximecarboxylic acid (GUINCHARD), A., i, 780.
- p*-Methoxyallylbenzene**, formation of (MOUREU), A., i, 495.
- Methoxyaminopropane- $\alpha\beta$ -triethylsulphone** (POSNER), A., i, 605.
- Methoxyamino- $\alpha\beta$ -trithioethylpropane** (POSNER), A., i, 605.
- m*-Methoxybenzaldehydehydrazone** (BOUVEAULT), A., i, 288.
- o*-Methoxybenzamide**, hydrolysis of (REID), A., i, 508.
- o*- and *p*-Methoxybenzeneazophenols** (KRAUSE), A., ii, 272.
- p*-Methoxybenzeneazo-3-phenyl-1-methylbenzoxazole** (HEINRICH), A., i, 172.
- Methoxybenzene-*p*-sulphonic acid**, action of bromine on (ARMSTRONG), P., 1899, 177.
- o*-Methoxybenzoic acid**, dichloro- (MARTINI), A., i, 877.
- m*-Methoxybenzoic acid**, 6-chloro-, methylic salt, and (?) chloro-, methylic salt (MAZZARA), A., i, 811.
- p*-Methoxybenzoic acid**, 3-chloro-, methylic salt (MAZZARA), A., i, 811.
- o*-Methoxybenzonitrile** (RINGER), A., i, 893.
- p*-Methoxybenzonitrile** (REINDERS and RINGER), A., i, 893.
- o*-Methoxybenzophenonephenylimine** (GRAEBE and KELLER), A., i, 703.
- p*-Methoxybenzoylpropionic acid** (GABRIEL and COLMAN), A., i, 391.
- m*- and *p*-Methoxybenzyleamphors** (HALLER), A., i, 770.
- m*- and *p*-Methoxybenzylidenecamphor** (HALLER), A., i, 770.
- δ -Methoxybutylamine** and its salts (SCHLINCK), A., i, 539.
- γ -Methoxybutyronitrile** (SCHLINCK), A., i, 539.
- Methoxydichloroacetic acid**, methylic salt (*methylic dichloroacetate*), action of ammonia, *p*-toluidine, and phenylhydrazine on (ANSCHÜTZ and STIEPEL), A., i, 572.
- methylic salt, action of methylic sodiomalonate on (ANSCHÜTZ and CLARKE), A., i, 577.
- p*-Methoxycinnamic acid**, formation of (KNOEVENAGEL), A., i, 145.
- and its ethylic salt and dibromide (REYCHLER), A., i, 54.
- o*-Methoxycoumaraldehyde**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
- exo*-Methoxy- ψ -cumenol**, dibromo- (AUWERS), A., i, 343.
- p*-Methoxy- ψ -cumylic methylic ether** (AUWERS and ERCKLENTZ), A., i, 35.
- 3'-Methoxy-3:4-diethoxybenzylidene-coumaranone** (VON KOSTANECKI and RÓŻYCKI), A., i, 912.
- 4-Methoxy-2':5'-diethoxychalkone** (VON KOSTANECKI and ODERFELD), A., i, 705.
- Methoxydiphenylanthrone** (TÉTRY), A., i, 818.
- Methoxydiphenylcarboxylic acid**. See Phenylmethylsalicylic acid.
- Methyldithiodiazolonesulphonic acid** (BUSCH and ZIEGELE), A., i, 827.
- 3-Methyldithiodiazolonethiol** and methylic salt and benzoyl derivative (BUSCH and ZIEGELE), A., i, 827.
- 4'-Methoxy-2-ethoxyflavanone**, and monobromo-derivative (VON KOSTANECKI and ODERFELD), A., i, 705.
- 4'-Methoxy-2-ethoxyflavone** (VON KOSTANECKI and ODERFELD), A., i, 705.
- Methoxyethylene**, trichloro-, oxidation of (HENRY), A., i, 660.
- 3-Methoxyflavone** (EMILEWICZ and VON KOSTANECKI), A., i, 369.
- 3-Methoxygallic acid** (VOGL), A., i, 698.
- 4-Methoxy-2-hydroxyphenyl-*p*-methoxystyryl ketone**. See Anisylidenepaeonol.
- 4-Methoxy-2-hydroxyphenyl piperonal-methyl ketone**. See Piperonalpaeonol.
- 4-Methoxy-2-hydroxyphenylstyryl ketone**. See Benzylidenepaeonol.
- Methoxymethylenecyanacetic acid**, methylic and ethylic salts (BOILEMONT), A., i, 736.
- Methoxymethylpropylbenzoic acid** and amide (GATTERMANN and OBERLÄNDER), A., i, 510.
- 4-Methoxy-2-methyl-5-isopropylthiobenzanilide** (BAMBERGER), A., i, 695.
- Methoxymethylterephthalic acid** (PERKIN), T., 194.
- p*-Methoxy-*o*- and -*m*-methylthiobenzanilides** (BAMBERGER), A., i, 695.
- 4'-Methoxy- α -naphthylflavone** (KELLER and VON KOSTANECKI), A., i, 524.
- 1:2- and 1:4-Methoxynaphthaldehydes**, behaviour of, towards acetic anhydride and sodium acetate (ROUSSET), A., i, 296, 297.
- 1:4-Methoxynaphthylacrylic acid** (ROUSSET), A., i, 296.
- p*-Methoxyphenylacetylene** (REYCHLER), A., i, 55.

- o*-Methoxyphenyldimethylketopyrrolidone (CONRAD and HOCK), A., i, 633.
- 3-Methoxy-1-phenyl-4-dimethyl-5-pyrazolone** (MICHAELIS and RÖHMER), A., i, 234.
- 2-Methoxyphenyl-4:6-dimethylpyrimidine** (GABRIEL and COLMAN), A., i, 638.
- m*- and *p*-Methoxyphenylglyoxylic acids (BOUVEAULT), A., i, 287, 288.
- 2'-Methoxy-3'-phenyl-4'-ketodihydroquinazoline** (MCCOY), A., i, 361.
- p*-Methoxyphenyl- ψ -meconine (BISTRZYCKI and DE SCHEPPER), A., i, 151.
- 3-*o*-Methoxyphenyl-1-methyl-5-cyclohexenone**, its oxime, and **2:4-dicarbonylic acid** (KNOEVENAGEL and GROOS), A., i, 215.
- 3-*p*-Methoxyphenyl-1-methyl-5-cyclohexenone**, its oxime, and **2:4-dicarbonylic acid**, ethylic salt (KNOEVENAGEL and GOECKE), A., i, 215.
- 2-Methoxyphenyl-4-methylpyrimidine**, 6-chloro- (GABRIEL and COLMAN), A., i, 638.
- 2-*o*-Methoxyphenyl-4-methylpyrimidone** (GABRIEL and COLMAN), A., ii, 638.
- p*-Methoxyphenylpropionic acid** (REYCHLER), A., i, 55.
- 6-Methoxy-3-phenylpyridazine** (GABRIEL and COLMAN), A., i, 391.
- p*-Methoxyphenylsuccinimide, formation of (BENEVENTO), A., i, 349.
- 3-Methoxypiperonalcoumarone** (EMILEWICZ and VON KOSTANECKI), A., i, 369.
- 1-Methoxypropionic acid**, and methylic, ethylic, and metallic salts, specific rotations of (PURDIE and IRVINE), T., 485; P., 1899, 74.
- 4-Methoxy-1-propylbenzenesulphonic acid**, chloride and amide (KLAGES), A., i, 585.
- Methoxysuccinic acid**, ethereal salts, specific rotations and molecular volumes of (FRANKLAND), T., 353.
- p*-Methoxythiobenzanilide, and 3-chloro-, 3-bromo-, and 3-iodo-, and *p*-chloranilide, and *m*-bromanilide (BAMBERGER), A., i, 695.
- p*-Methoxythiobenzo-*p*-anisidide, - α - and - β -naphthalides, -*p*-phenetidine, and -*o*-, -*m*-, and -*p*-toluidides (BAMBERGER), A., i, 695, 696, 697.
- Methoxythiocresol**, and its methylic ether (GATTERMANN), A., i, 518.
- α - and β -Methoxythionaphthanilides (BAMBERGER), A., i, 695.
- 4-Methoxythionaphtho-*m*-bromanilide-*p*-chloranilide**, and α -naphthalide (BAMBERGER), A., i, 696, 697.
- o*- and *p*-Methoxythiophenols, and their methylic ethers (GATTERMANN), A., i, 518.
- o*- and *p*-Methoxytoluenes, dichloro- (MARTINI), A., i, 877.
- Methoxytoluenesulphonic acid**, potassium salt, chloride, amide, and anilide (GATTERMANN), A., i, 519.
- 4-Methoxytoluene-3-sulphinic acid** (GATTERMANN), A., i, 517.
- 4-Methoxy-*m*-tolylthiofluorescein** (GATTERMANN and BERENDES), A., i, 514.
- Methoxytricarballic acid**, and methylic salts (ANSCHÜTZ and CLARKE), A., i, 577.
- Methoxy-*p*-xylic acid** [Me:Me:COOH:OMe=1:2:4:6], (PERKIN), T., 193.
- Methronene**, formation of (DAIN), A., i, 435.
- Methylacetoacetic acid**, ethylic salt, action of bromine on (SEMENOFF), A., i, 791.
- condensation of, with ethylic α -bromopropionate and α -bromoisobutyrate (BONE and SPRANKLING), T., 847.
- action of *p*-phenetidine on (FOGLINO), A., i, 132.
- α -Methylacetoacetic acid, γ -dibromo-, ethylic salt, formation of mesaconic acid from (CONRAD), A., i, 481.
- Methylacetobutylic alcohol**, anhydride and bromide (SACHS), A., i, 302.
- β -Methyl- γ -acetobutyric acid, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Methylacetophenylammonium**, **Methyldiacetophenylammonium**, and **Methyltriacetophenylammonium** bromides (SCHMIDT), A., i, 5.
- Methylacetylacetone**, cyanimino-. See Acetylacetone, dicyano-.
- α -Methylacetylsuccinic acid, ethylic salt (BONE and SPRANKLING), T., 848.
- β -Methylacetylsuccinic acid, ethylic salt, action of methylic iodide on the sodium derivative (BONE and SPRANKLING), T., 848.
- Methylacrylic acid**, ethylic salt, polymeride of (BISCHOFF and BRODSKY), A., i, 202.
- Methylacrylonitrile**. See Butenoic acid, nitrile of.
- β -Methyladipic acid, hydrazide and azide of (ETAIX and FREUNDLER), A., i, 245.
- α -dibromo-, ethylic salt (WILLSTÄTTER and VON SICHERER), A., i, 633.
- β -Methylæsculetin (*gelsemic acid*), and its reduction product (SCHMIDT), A., i, 72.

- Methylal**, action of ammonia on mercuric chloride dissolved in (NAUMANN), A., ii, 423.
dichloro-. See Trioxymethylene, *dichloro*-.
1-Methylal-2:3'-dimethylnaphthalene, tribromo- (VON BAEYER and VILLIGER), A., i, 922.
Methylallylaniline (WEDEKIND), A., i, 353, 636.
Methylallylnicotinamide (PICTET and SUSSDORFF), A., i, 165.
Methylamine, solubility of silver bromide in aqueous (JARRY), A., ii, 738.
 action of lithium on (MOISSAN), A., i, 410.
 action of electric glow discharge on mixtures of, with oxygen (MIXTER), A., ii, 267.
 combination of lithium chloride with (BONNEFOI), A., i, 185.
 compounds of, with metallic salts (MATTHEWS), A., ii, 296.
 hydrochloride, action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
 periodide (NORRIS and FRANKLIN), A., i, 663.
Methylaminoborneol (DUDEN and PRITZKOW), A., i, 626.
Methylaminocamphor, salts, acetyl and nitroso-derivatives, carbamide (DUDEN and PRITZKOW), A., i, 626.
8-Methylaminocrotonoethylideneacetoacetic acid, ethylic salt (KNOEVENAGEL and REINECKE), A., i, 340.
 γ -Methylaminopropylene $\alpha\beta$ -glycol (*methylpropanediolamine*), and its hydrochloride and picrolonates (KNORR and KNORR), A., i, 411.
Methyl amyl diketone (*acetylhexoyl*) (FILETI and PONZIO), A., i, 111.
 from action of sulphuric acid on *isomethyl* hexyl ketone, and its phenylhydrazoxime, phenylhydrazone and osazone (PONZIO and PRANDI), A., i, 253.
Methylisoamyl diketone (*acetylisohevoyl*) and its dioxime (FILETI and PONZIO), A., i, 111.
Methylisoamylmaleic acid, anhydride and anil of; reduction (AUDEN, PERKIN, and ROSE), T., 918; P., 1899, 163.
 α -Methyl- β -isoamylsuccinic acids, *cis*- and *trans*-, formation of (AUDEN, PERKIN, and ROSE), T., 918; P., 1899, 163.
 isomeric, and their anhydrides (LAWRENCE), P., 1899, 164.
 α -Methyl- β -isoamylsuccinic acid, α -cyano- and β -cyano-, and their hydrolysis; also their ethylic salts (LAWRENCE), P., 1899, 163.
Methylaniline, salts of (MENSCHUTKIN), A., i, 500.
o-chloro- (FRIEDLÄNDER), A., i, 351.
o-chloro-, *m*-chloro-, *p*-chloro-, *m*-chloronitro-, 2:4-chloronitro-, 4:2-chloronitro-, 4:2:6-chlorodinitro-*o*-chloronitroso-, *m*-chloronitroso-, *p*-chloronitroso-, 2:4-chloronitronitroso-, *m*-chloronitronitroso-, 4:2:6-chlorodinitronitroso-, *p*-nitronitroso-, 2:4-dinitronitroso- (STOERMER and HOFFMANN), A., i, 43, 44.
 cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.
p-nitro-, and *o*-nitro-, formation of (PINNOW and OESTERREICH), A., i, 202.
 2:4-dinitro, preparation of (STOERMER and HOFFMANN), A., i, 43.
 nitroso-, formation of (FISCHER), A., i, 349.
2'-Methylanilino-3'-phenyl-4'-ketodihydroquinazoline (MCCOY), A., i, 360.
Methylanilinopropionic acid, ethylic salt (BISCHOFF and TARASCHTSCHANSKY), A., i, 202.
 α -Methylanilinoisovaleric acid, ethylic salt (BISCHOFF and BERNHARD), A., i, 202.
Methylazimidoxylene (PINNOW and OESTERREICH), A., i, 203.
3 Methylbenzhydrol, 6-amino- (HANSCHKE), A., i, 775.
N-Methylbenzimidazole, 2-chloro-, mercurchloride (PINNOW), A., i, 203.
2-Methylbenzophenone, 5-amino-, and benzoyl derivatives and salts (HANSCHKE), A., i, 776.
3-Methylbenzophenone, 6-amino- and salts and benzoyl derivative (HANSCHKE), A., i, 775.
***o*-Methylbenzophenonephenylimine** (GRAEBE and KELLER), A., i, 703.
***iso*- μ -Methylbenzothiazole**, and its platinochloride (MÖHLAU and KLOPFER), A., i, 240.
Methylbornylamine, hydrochloride, hydriodide, platinochloride, benzoyl derivative (FORSTER), T., 941; P., 1899, 72.
 hydriodide from benzylidenebornylamine methiodide (FORSTER), T., 1151; P., 1899, 194.
Methylbornylhydrazine (FORSTER), T., 943.

- α -Methyldibromo- β -propylactic acid**, from action of bromine on α -methyl-lactic acid (FITTING and DE HAVEN-BOYD), A., i, 191.
- Methyldibromoxindole**, preparation of (HARTLEY and DOBBIE), T., 645.
- Methylbrucine** (MOUFANG and TAFEL), i, 309.
- Methylisobutenyl ketone**. See Mesityl oxide.
- Methyltert. butylacetophenone** (MEISEL), A., i, 880.
- Methylbutylallylcarbinamine**, action of nitrosyl chloride on (SOLONINA), A., i, 473.
- Methyltert. butylbenzenes**, nitro- $[\text{CH}_3 : \text{CMe}_3 = 1 : 3 \text{ and } 1 : 4]$ (KONOWALOFF and EGEROFF), A., i, 801.
- Methyl butyl diketone (acetylvaleryl)** and its dioxime (FILETI and PONZIO), A., i, 111.
- Methylbutylenediamine**, active, and its hydrochloride, platinochloride, picrate and dibenzoyl derivative (ETAIX and FREUNDLER), A., i, 245.
- Methylisobutylenediacetic acid**. See Heptenoic acid.
- Methyl butyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
- Methyl tert. butyl ketone**. See Pinacolin.
- Methylcamphanmorpholine** and **Methylcamphenemorpholine**, salts and methiodides (KNORR), A., i, 783, 784.
- Methylcarbamide**, action of ethylic diethoxysuccinate on, in presence of hydrogen chloride (GEISENHEIMER and ANSCHÜTZ), A., i, 575.
oxidation of (OECHSNER DE CONINCK), A., i, 421.
- Methylcarbostyryl** and **Methyl- ψ -carbostyryl**, preparation, absorption spectra, and constitution of (HARTLEY and DOBBIE), T., 644; P., 1899, 47.
- Methyl α -chloroethyl ketone**, dichloro- (SCHNEIDER), A., i, 680.
- α -Methylcinnamic acid**. See Phenylcrotonic acid.
- p-Methylcinnamic acid**. See p-Tolylacrylic acid.
- Methylcinnamylidene-acetone** and -acetophenone, and their oximes (SHOLTZ), A., i, 717.
- Methyleitraconic anhydride**, action of hydrobromic acid on (SEMENOFF), A., i, 866.
- Methylisocoumarin**, and its dibromide (GOTTLIEB), A., i, 512, 513.
- Methylcrotonic acid**. See Pentenoic acid.
- α -Methylcrotononitrile**. See Tiglonitrile.
- γ -Methylcrotononitrile (β -ethylacrylonitrile)** (HENRY), A., i, 567.
- Methylcyanotriazen**, aminoimino-. See Diazoguanidine cyanide.
- Methyldeoxybenzoin** (COLLET), A., i, 55.
- α -2-Methyldeoxybenzoin-2'-carboxylic acid**, salts and amide (BETHMANN), A., i, 520.
- β -2'-Methyldeoxybenzoin-2-carboxylic acid** (BETHMANN), A., i, 521.
- Methyldeoxycinchonidine**, its mercuri- and platino-chlorides, methiodide, oxidation and decomposition products (KOENIGS and HÖPPNER), A., i, 87.
- Methyl-m-diazine**. See Methylpyrimidine.
- α -Methyldiazonium salts**, action of alkalis on (BAMBERGER), A., i, 543.
- 2'-Methylbenzyl-2-carboxylic acid** (BETHMANN), A., i, 520.
- 1:3:5-Methyldiethylbenzene**, and *tri*-nitro- (GATTERMANN, FRITZ, and BECK), A., i, 492.
- 1:3:5-Methyldiethylbenzoic acid** and amide (GATTERMANN, FRITZ, and BECK), A., i, 492.
- 5-Methyl-2:6-diethyl-m-diazine**, amino-. See Cyanethine.
- 1'-Methyl-4':4'-diethyldihydroquinoline**, identity of, with 1'-methyl-3':3'-diethyl-2'-methylenindoline (PLANCHER), A., i, 451.
- 2'-Methyl-3'-3'-diethylindolenine**, and two isomeric acetyl derivatives (PLANCHER), A., i, 450.
action of nitrous acid on (PLANCHER), A., i, 453.
- 2'-Methyl-3':3'-diethyl-indoline, -indolinol, and -2'-methylenindoline** (PLANCHER), A., i, 451.
- 1-Methyl-3':3'-diethylindolinone, dibromo-** (PLANCHER), A., i, 451.
- 5-Methyl-3:5-diethylpyrazoline**, and **5-Methyl-3:5-dihexylpyrazoline** (CURTIUS and ZINKEISEN), A., i, 165, 166.
- 2-Methyldihydroindole (methyldihydroketole)**, 1-nitro-, and p-nitro- (STOERMER and DRAGENDORFF), A., i, 45.
- Methyldihydro-resorcinol and -resorcylic acid**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Methyldihydrotrimesic acid**, and salts (WOLFF and HEIP), A., i, 515.
- 3-Methyl-2:6-diphenylpyridine**, and salts (SCHOLTZ), A., i, 717.
- 5-Methyl-3:5-dipropylpyrazoline** (CURTIUS and ZINKEISEN), A., i, 165.

- Methylisodi-*o*-tolylcarbamide**, and its hydrochloride and platinochloride (DAÏNS), A., i, 592.
- Methyleneamino-acetonitrile**, action of hydrogen chloride on (CURTIUS), A., i, 9.
- Methyleneasparagine** and its copper salt (SCHIFF), A., i, 870.
- Methylenebisaniiline**, action of, on ethylic malonate (KNOEVENAGEL), A., i, 116.
- Methylenebismalonic acid**. See Propane-tetracarboxylic acid.
- Methylenebis-piperidine**, action of, on ethylic malonate (KNOEVENAGEL), A., i, 116.
- Methylene-blue**, molecular weight of, in water or alcohol (KRAFFT), A., ii, 473.
- Methylenedi-*p*-anhydroaminobenzyllic alcohol** (LÖB), A., i, 123.
- Methylenediguaiacol** (BOUVEAULT), A., i, 264.
- Methylenedimalonic acid**. See Propane-tetracarboxylic acid.
- Methylenedioxy-cinnamic acid**, ethylic salt (REYCHLER), A., i, 55.
and its dibromide (BAUDE and REYCHLER), A., i, 142.
- Methylenedioxyphenylacetylene** (BAUDE and REYCHLER), A., i, 142.
- Methylenedioxyphenylpropionic acid** (BAUDE and REYCHLER), A., i, 142.
- Methylenedi-*p*-phenetidine** (BISCHOFF and SCHATZ), A., i, 278.
- Methylenediphenylhydroxylamine** (BAMBERGER), A., i, 270.
- Methylenemalonic acid**, ethylic salt, action of bromine on (KOMPPA), A., i, 417.
- Methylene-2-naphthylamine**, 1-chloro- and 1-bromo- (MORGAN), P., 1899, 10.
- Methylenic chlorhydrin**, and the action of sodium acetate on it; also its condensation with benzene (GRASSI-CHRISTALDI and MASELLI), A., i, 409.
- Methylethylacetic acid**. See Valeric acid.
- Methylethylacetoacetic acid**, γ -bromo- and γ -cyano-, ethylic salts (LAWRENCE), T., 422; P., 1898, 252.
- β -Methylethylallene**, and action of hydrogen bromide on (IPATIEFF), A., i, 658.
- Methylethylallylmalonic acid**, and ethylic salt (IPATIEFF), A., i, 673.
- Methylethylamylsulphine** and **Methylethylisocamylsulphine** iodides, and their rotatory power (BRJUCHONENKO), A., i, 189.
- Methylethylazole**, imino-. See Methyl-ethylglyoxaline.
- Methylethylazalone**, imino- (JÄNECKE), A., i, 476.
- Methylethylazoly- μ -mercaptan**, imino- (JÄNECKE), A., i, 476.
- 1'-Methyl-3-ethylbenzimidazolone-2-carboxylic acid** (PINKOW and SÄMANN), A., i, 943.
- Methylethylisobutylamine**, and the action of propylic iodide on it (MARCKWALD and DROSTE-HUELSHOFF), A., i, 326.
- 3'-Methyl-1'-ethyl-dihydrophthalazine** (PAUL), A., i, 777.
- α -Methylethylethylene**. See Amylene.
- Methylethylglycollonitrile** and acetate; also action of hydrochloric acid and phosphoric anhydride on the latter (HENRY), A., i, 568.
- Methylethylglyoxaline** (*methylethyl-iminazole*), from action of nitric acid or ethylic nitrite on aminodiethyl ketone hydrochloride (JÄNECKE), A., i, 476.
- Methylethylglyoxime**, reduction of (JÄNECKE), A., i, 477.
- 2-Methyl-1-ethyl-3-hydroxyethylpiperidine** (*N-ethyl- α -piperidyl- β -methylalkine*) (LADENBURG and ROSENZWEIG), A., i, 304.
- 2-Methyl-1-ethyl-3-hydroxyethyl- Δ_2 -tetrahydropyridine** (*N-ethyl- α -piperidyl- β -methylalkine*), (LADENBURG and ROSENZWEIG), A., i, 303.
- 2'-Methyl-1'-ethylindole**, identity of, with 2'-methyl-3'-ethylindole (PLANCHER), A., i, 450.
- 3'-Methyl-2'-ethylindole**, and nitroso-derivative (PLANCHER), A., i, 453.
- Methyl ethyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
separation of, from ethylic alcohol (DUCHEMIN), A., i, 666; (BUISSINE), A., i, 728.
- Methylethylmelamine**. See Cyanur-methylamidoethylamide, amido-.
- iso-Methylethylnitramine**, action of sulphuric acid on (FRANCHIMONT and UMBROVE), A., i, 106.
- 3-Methyl-1'-ethylphthalazone**, and salts (PAUL), A., i, 777.
- 2-Methyl-1-ethylpiperidine**, rotation of (HOHENEMSER and WOLFFENSTEIN), A., i, 936.
- Methylethylpropylisobutylammonium** iodide, platinochloride and aurichloride (MARCKWALD and DROSTE-HUELSHOFF), A., i, 326.

- 2:4- and 4:3-Methylethylpyridines** (α - and β -collidines), action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
- 4-Methylfurfuraldehyde**, ω -bromo- (FENTON and GOSTLING), T., 424; P., 1899, 57.
- α -**Methylglucoside**, action of yeast enzymes on (KALANTHAR), A., i, 102.
- α -**Methylglutaric acid** (*butanedicarboxylic acid*), from carvenone (TIEMANN and SEMMLER), A., i, 224. formation of (BONE and SPRANKLING), T., 850.
- β -**Methylglutaric acid** (*butanedicarboxylic acid*, *ethylidenediacetic acid*), and its anhydride (KNOEVENAGEL), A., i, 116.
ethylic salt, condensation of, with ethylic oxalate (DIECKMANN), A., i, 676.
- Methylgranatic acid**, methylic salt (PICCININI), A., i, 964.
- Methylgranatonine**, constitution and di-isonitroso-derivative (PICCININI), A., i, 829, 830.
- Methylgranatylamine**, and ψ -**Methylgranatylamine** (PICCININI and QUARTAROLI), A., i, 965.
- Methylgranatylphenylthiocarbamides** (PICCININI and QUARTAROLI), A., i, 965.
- 7-Methylguanine** (*2-amino-6-oxy-7-methylpurine*), identity of epiguanine with, and conversion into heteroxanthine (KRÜGER and SALOMON), A., i, 806.
- 2-Methyl-4:5:6-heptatriene** (GRIGNARD), A., i, 728.
- 2-Methyl-4-heptene-6-ine** (GRIGNARD), A., i, 727.
- Methylheptenol** (*methylheptylencarbinol*), from action of alcoholic potash on geraniol (TIEMANN), A., i, 184.
- Methylheptenone** (*2-methyl-2-heptene-6-one*), in lemon grass oil (TIEMANN), A., i, 623.
natural, derivatives of (LÉSER), A., i, 190.
action of ethylic acetate on, in presence of sodium (BARBIER and LÉSER), A., i, 110.
action of ethylic oxalate and ethylic formate on, in presence of sodium ethoxide (LÉSER), A., i, 329.
action of methylic iodide on, in presence of magnesium (BARBIER), A., i, 323.
action of phosphorus pentachloride on (GRIGNARD), A., i, 727.
- Methylcyclohexane** (*methylhexanaphthene*), action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.
- 1-Methylcyclohexane-2-carboxylic acid** (*cis-hexahydro-o-toluic acid*), and its anilide and 1-bromo-derivative (SERNOFF), A., i, 584.
- 1-Methylcyclohexane-3-carboxylic acid**, and 1-bromo- and 3-bromo-derivatives (BRUHN), A., i, 422.
- Methylhexenamide**, from action of potash on methylactenonitrile (LÉSER), A., i, 414.
- 1-Methylcyclohexene-3-carboxylic acid** (BRUHN), A., i, 423.
- 1-Methylcyclo- Δ^6 -hexene-2-carboxylic acid** (SERNOFF), A., i, 584.
- 2-Methyl-3-hexene-5-ine** (GRIGNARD), A., i, 727.
- Methylhexenoic acid**. See Heptenoic acid.
- 2:3:5-Methylhexenone**, action of phosphorus pentachloride on (GRIGNARD), A., i, 727.
- Methylcyclohexenone**, action of ethylic sodiomalonate on (VORLÄNDER and GÄRTNER), A., i, 260.
reduction of (HARRIES and KAISER), A., i, 578.
- Methylhexenonepyruvic acid** (*8-methyl-7-nonene-2:4-dionoic acid*) (LÉSER), A., i, 329.
ethylic salt, and its copper derivative (LÉSER), A., i, 190.
- Methyl isohexyl diketone** (*acetylisoamyl-acetyl*) (FILETI and PONZIO), A., i, 111.
- Methyl hexyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
isonitroso-, action of sulphuric acid on (PONZIO and PRANDI), A., i, 253.
- p-Methylhydrazobenzene**, transformation of; acetyl and diacetyl derivatives; phenylthiocarbimide (JACOBSON and LISCHKE), A., i, 276.
- Methylhydroketole**. See 2'-Methyldihydroindole.
- Methylhydroxyethylaminoacetic acid** (*hydroxyethylsarcosine*), and copper salt (KNORR), A., i, 784.
- 2-Methyl-3-hydroxyethyl-1:1-diethylpiperidinium** (*diethylpipecolylalkinium*) salts (LADENBURG and KRÜGEL), A., i, 303.
- Methyl hydroxyethyl ketone**, formation of (DEMJANOFF), A., i, 845.
- 2-Methyl-3-hydroxymethyl-1-ethylpiperidine** (*N-ethyl- α -pipecolyl- β -alkine*) (LADENBURG and KRÜGEL), A., i, 303.

- 2-Methyl-3-hydroxymethyl-1-ethyl- Δ_2 -tetrahydropyridine** (*N-ethyl- α -pipecoleyl- β -alkine*) (LADENBURG and KRÜGEL), A., i, 303.
- 2-Methyl-3-hydroxymethyl-1-propyl-piperidine** (*N-propyl- α -pipecoleyl- β -alkine*) (LADENBURG and THEODOR), A., i, 304.
- 2-Methyl-3-hydroxymethyl-1-propyl- Δ_2 -tetrahydropyridine** (*N-propyl- α -pipecoleyl- β -alkine*) (LADENBURG and THEODOR), A., i, 304.
- Methylic alcohol**, presence of, in plants (LIEBEN), A., ii, 45.
- formation of, from metaformaldehyde (DELEPINE), A., ii, 142.
- dielectric constant of, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
- melting point of (LADENBURG and KRÜGEL), A., ii, 545.
- critical temperature of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
- boiling point curves of mixtures of, with chloroform or acetone (PETTIT), A., ii, 632.
- volume changes on mixing equivalent quantities of acids and bases in (MINOZZI), A., ii, 642.
- equilibrium between potassium carbonate, water and (DE BRUYN), A., ii, 591.
- velocity of reaction between methylic benzenesulphonate and (SAGREBIN), A., i, 735.
- ionisation of salts in (ROHLAND), A., ii, 144.
- action of ozone on (OTTO), A., ii, 282.
- action of hydrogen peroxide on, in presence and in absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.
- sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 669.
- detection of (MULLIKEN and SCUDDER), A., ii, 388.
- detection of, in spirits (TRILLAT), A., ii, 387.
- estimation of small quantities of (NICLOUX), A., ii, 253.
- estimation of, in ethylic alcohol (TRILLAT), A., ii, 130.
- Methylic allylic ether**, compound of, with sulphur dioxide (SOLONINA), A., i, 682.
- amylic ether, density, specific rotation, and molecular volume of (FRANKLAND), T., 360.
- sulphide, specific rotation of (BRJUCHONENKO), A., i, 189; ii, 265.
- Methylic dibromallylic ether** (LESPIEAU), A., i, 184.
- tetrabromopropylic ether** (LESPIEAU), A., i, 184.
- carbonate, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
- heat of combustion of (ZOUBOFF), A., ii, 589.
- chloride, melting point of (LADENBURG and KRÜGEL), A., ii, 545.
- viscosity of (BREITENBACH), A., ii, 403.
- crotonylic ether (CHARON), A., i, 848.
- ether, influence of water on the velocity of formation of (DE BRUYN and STEGER), A., i, 849.
- hydrochloride, dissociation of (WEGSCHEIDER), A., ii, 591.
- dichloro-, from action of hydrogen chloride on trioxymethylene (GRASSI-CRISTALDI and MASELLI), A., i, 409.
- ethylic ether, influence of water on the velocity of formation of (BRUYN and STEGER), A., i, 849.
- hydrogen carbonate (HEMPEL and SEIDEL), A., ii, 152.
- iodide, combination of, with aluminium iodide and carbon disulphide (KONOWALOFF), A., i, 471.
- velocity of action of sodium ethoxide on (STEGEER), A., i, 745.
- iodopropargylic ether (LESPIEAU), A., i, 184.
- phosphate, formation of (BELUGOU), A., i, 659.
- velocity of hydrolysis of (CAVALIER), A., ii, 13.
- and its double salts with barium, strontium, potassium, ammonium, and sodium (CAVALIER), A., i, 558.
- 3-Methylimino-1-phenyl-2-methyltriazoline** (BAMBERGER and VON GOLDBERGER), A., i, 548.
- 3-Methylindazole**, and its 3'-amino-derivative (BAMBERGER and VON GOLDBERGER), A., i, 546.
- 3-Methylindazoletriazolen** (BAMBERGER), A., i, 722.
- 2'-Methylindole** (*methylketole*), heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- action of alkylic iodides on (PICCININI), A., i, 74.
- isonitroso-, and potassium salt and hydrochloride (SPICA and ANGELICO), A., i, 939.
- 3'-Methylindole** (*scatole*), heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- detection of (GNEZDA), A., ii, 716.

- 1'-Methylindole-3'-acetic acid** and salts (PICCINI), A., i, 823.
- 3'-Methylindoleacetic acid** (*scatole-acetic acid*), formation of, in putrefaction of proteid (SALKOWSKI), A., ii, 567.
- 1'-Methylindole-3'-carboxylic acid**, preparation of (HARTLEY and DOBBIE), T., 645.
- Methylisatin**, preparation, absorption spectra, and constitution of (HARTLEY and DOBBIE), T., 645.
- Methyl- ψ -isatin**, preparation, absorption spectra, and constitution of (HARTLEY and DOBBIE), T., 647; P., 1899, 48.
- Methylitaconic acid**, and its anhydride and dibromide; also its conversion into pyrocinchonic anhydride, and its reduction (FITTIG and KETTNER), A., i, 333.
- Methylketole**. See 2'-Methylindole.
- α -Methylactic acid**, and its amide; also action of bromine on (FITTIG and DE HAVEN-BOYD), A., i, 191.
- α -Methylactonitrile**. See β -Hydroxyisobutyronitrile.
- p*-Methylmalachite-green**, leuco-base of (HANZLIK and BIANCHI), A., i, 597.
- α -Methylmalic acid**. See Citramalic acid.
- Methylmalonic acid**. See *iso*-Succinic acid.
- Methylmercaptothiazoline**, action of hydrochloric acid on (GABRIEL and LEUPOLD), A., i, 104.
- Methylmesaconic acid**, preparation of, from ethylic dibromethylacetoacetate (SEMENOFF), A., i, 792.
- β -Methylmesaconic acid** (*dimethylfum- α -aric acid*), and its calcium, barium, and silver salts; also its conversion into pyrocinchonic anhydride and its reduction (FITTIG and KETTNER), A., i, 333.
- Methylmethenine** methiodide (FREUND), A., i, 308.
- Methylmorphimethine**, reduction of (VONGERICHTEN), A., i, 551.
- β -Methylmorphimethine** methiodide (VONGERICHTEN), A., i, 966.
- 1:3-Methylmorpholone**, salts and methiodide (KNORR), A., i, 784.
- α -Methyl- β -naphthacinchonic acid** and its β -naphthalide, formation of (TIE-MANN), A., i, 249.
- Methylnaphthalanmorphine**, methiodide of (KNORR), A., i, 463.
methylhydroxide and salts, and decomposition products (KNORR), A., i, 782.
- 1''-Methylnaphthalanmorpholine**, and salts (KNORR), A., i, 782.
- Methylnaphthaphenazonium**, salts, 2-amino-, 2-nitro-, and 2-nitro-4'-amino-, and acetyl derivatives (KEHRMANN and JACOB), A., i, 237.
- Methylnicotinamide** and methiodide (PICTET and SUSSDORFF), A., i, 164.
- Methylnitramine**, constitution of, mercury derivative of (LEY and KISSEL), A., ii, 486.
silver derivative, action of propylic iodide on (UMBROVE and FRANCHIMONT), A., i, 106.
and its silver and mercury derivatives, action of sulphuric acid on (FRANCHIMONT and UMBROVE), A., i, 106.
- Methyl-*o*-nitraniline**, condensation of, with formaldehyde (FRIEDLÄNDER), A., i, 350.
- p*-Methylnitrosamino-*o*-acetotoluidide**, -*o*-tolueneazo- β -naphthylamine, -toluidine, -*s*-xyleneazo- β -naphthylamine, and -xylylphenylthiocarbamide (PINNOW and OESTERREICH), A., i, 202, 203.
- 2-Methyl-2-nonene-6:8-dione**. See Acetylmethylheptenone.
- 2-Methyl-2-nonene-6-onoic acid** and its ethylic salt; also the phenylhydrazone of the latter (BARBIER and LÉSER), A., i, 111.
- 2-Methyl-2-nonene-6-one** (LÉSER), A., i, 190, 414.
- Methyl nonyl ketone**, and oxime and ammonium hydrogen sulphite compound (CARETTE), A., i, 860.
- Methylnornarcotine** methiodide, diiodo- (FRANKFORTER and KELLER), A., i, 782.
- 2-Methyl-2-octen-6-onal-8** (LÉSER), A., i, 330, 414.
- 2-Methyl-2-octen-6-ononitrile-8**, and its ethylic derivative (LÉSER), A., i, 414.
- 1-Methylol-2:3'-dimethylnaphthalene**, and its tribromo-derivative; acetyl derivative and ethyl ether of the latter (VON BAEYER and VILLIGER), A., i, 922.
- Methyl-orange** as an indicator (WADDELL), A., ii, 83.
- Methylisooxazolone**, oxime of, methylic and potassium salts (GUINCHARD), A., i, 779.
- γ -Methylpentane**, $\alpha\gamma$ -dibromo-. See Hexane, dibromo-.
- 1-Methylcyclopentane** (*methylpentamethylene*) (MARKOWNIKOFF), A., i, 799.
heat of combustion of (ZOUBOFF), A., ii, 589.
action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.

- 1-Methylcyclopentane**, 1-amino-, 2-amino-, 3-amino-, 1-chloro-, 2-chloro-, 3-iodo-, 1-nitro-, and 2-nitro- (MARKOWNIKOFF), A., i, 799, 800.
- Methylcyclopentane-2-carboxylic acid** (*methylpentamethylenecarboxylic acid*), identity of hexanaphthenecarboxylic acid with (MARKOWNIKOFF), A., i, 800.
- 2-Methylcyclopentane-4:5-dione-1:3-dicarboxylic acid**, diethylic salt and its phenazine derivative (DIECKMANN), A., i, 676.
- 1:3-Methylcyclopentanone**, and oxime (MARKOWNIKOFF), A., i, 799.
- Methylcyclo- Δ^1 -pentene** (MARKOWNIKOFF), A., i, 800.
- Methylcyclopentenoneoxime**, acetyl derivative of (BOUVEAULT), A., i, 120.
- N-Methylphenacetine** (HINSBERG), A., i, 495.
- Methylphenomorpholine**, picronolate (KNORR), A., i, 462.
- o*-Methylphenylacetaldehyde**, *o*-amino-, benzoyl derivative, oxidation of (MAASS and WOLFFENSTEIN), A., i, 110.
- Methylphloroglucinol**, its methylic ether and dibromo-derivative (BOEHM), A., i, 32.
- dichloro-*, and its triacetyl derivative (SCHNEIDER), A., i, 679.
- Methylphthalimide** (SACHS), A., i, 280.
- N-Methyl- α -pipecolyl- β -methylalkine**. See 1:2-Dimethyl-3-hydroxyethyl- Δ^2 -tetrahydropyridine.
- N-Methyl- α -pipecolyl- β -methylalkine**. See 1:2-Dimethyl-3-hydroxyethylpiperidine.
- 2-Methylpiperidine**, rotation of (HOHENEMSER and WOLFFENSTEIN), A., i, 936.
- Methylpiperidines**, 1- and 2-, molecular refractions of (POPE and PEACHEY), T., 1115.
- Methylpiperidineacetyl chloride** and salts (SCHMIDT and KNUTTEL), A., i, 229.
- Methylpropanediolamine**. See γ -Methyl-amino- $\alpha\beta$ -propylenic glycol.
- β -Methylpropanetetracarboxylic acid**, ethylic salt and amide (RUHEMANN), T., 245; P., 1899, 6.
- Methylisopropenecyclohexenol**, from citral (VERLEY), A., i, 768.
- Methylisopropylbenzaldehyde** (VERLEY), A., i, 207.
- Methylpropylbenzylidenenaniline** and its hydrazone (BOUVEAULT), A., i, 287.
- Methylpropylcarbinol**. See Amylic alcohol.
- 1-Methyl-2:3-propylenepiperidine**, and its salts (LADENBURG and BRANDT), A., i, 305.
- Methylisopropylglycollonitrile** (*methylisopropylketocyanhydrin*) and acetate and dimethylamine derivative (HENRY), A., i, 568.
- Methylisopropylhexahydrofluorene** (WALLACH), A., i, 532.
- 3:5-Methylisopropylcyclohexanone**, hydroxylamino oxime (HARRIES and MATFUS), A., i, 583.
- Methylisopropylketocyanhydrin**. See Methylisopropylglycollonitrile.
- Methyl propyl ketone**, heat of combustion of (ZOUBOFF), A., ii, 589.
- isonitroso-*, action of nitric peroxide on (PONZIO), A., i, 667.
- Methyl isopropyl ketone**, specific heat and heat of vaporisation of (LUGNIN), A., ii, 269.
- heat of combustion of (ZOUBOFF), A., ii, 589.
- Methyl *n*- and *iso*-propyl ketones**, from the acetone oil from calcium pyrolygnate (BUISINE and BUISINE), A., i, 475.
- Methylpropylketoxime**, and its reduction (KURSANOFF), A., i, 474.
- 1-Methyl-3-isopropylpiperidine** (LADENBURG and BRANDT), A., i, 305.
- Methylpropyltetramethylene-disulphide**, and disulphone (AUTENRIETH and WOLFF), A., i, 580.
- 7-Methylpurine**, and 2-amino- and 2-chloro-derivatives (FISCHER), A., i, 175.
- 2-amino-6-oxo-. See 7-Methylguanine (*epiguanine*).
- trichloro-*, behaviour of, with potassium hydrosulphide (FISCHER), A., i, 262.
- 2-iodo- (FISCHER), A., i, 174.
- 9-Methylpurine** and 2(?) -amino-, 2(?) -chloro-, *trichloro-*, and 2(?) -iodo-derivatives (FISCHER), A., i, 175.
- 2:6-*dichloro*-8-amino- (FISCHER), A., i, 393.
- 5-Methylpyrazoline**, maleate, toluene azo- and benzoyl derivatives of (CURTIUS and ZINKEISEN), A., i, 166.
- Methylpyridines**. See Picolines.
- 4-Methylpyrimidine** (*4-methyl-m-diazine*) and salts; *dichloro*-derivative and its salts (GABRIEL and COLMAN), A., i, 639.
- Methylpyrogallol**, and its triacetate and dimethylic ether [Me:OH:(OMe)₂=1:3:5:4] (ROSAUER), A., i, 346.
- 3-Methylpyrrolidine-2:5-dicarboxylic acid** (WILLSTÄTTER and VON SICHERER), A., i, 633.
- 1-Methylpyrrolacetic acid**, and salts (PICCININI), A., i, 823.

- 3-Methylquinoline** and its 2'-hydrosulphide, and 2'-methosulphide, and 2'-chloro-derivative (FISCHER and KLITSCH), A., i, 634, 635.
- 2'-Methylquinoline** (*quinaldine*), aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
condensation of, with formaldehyde (KOENIGS), A., i, 389.
- 4'-Methylquinoline** (*lepidine*), action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
*di*bromonitro-, *tribromonitro*- (KOENIGS), A., i, 74, 75.
- Methylquinolylacetyl chloride** (SCHMIDT and GOEHLICH), A., i, 232.
- Methylisorosindone**, and salts (FISCHER and HEPP), A., i, 78.
- Methylrosinduline**, salts of (KEHRMANN and LOCHER), A., i, 82.
- Methylsalicylidenediacetoacetic acid**, ethylic salt (KNOEVENAGEL and GROOS), A., i, 215.
- Methylsalicylidenemalonic acid**, ethylic salt (KNOEVENAGEL and GROOS), A., i, 117.
- 2'-Methylstilbene-2-carboxylic acid** (BETHMANN), A., i, 520.
- 4-Methylstyrene**. See *p*-Tolylacetylene.
- Methylsuccinic acid** (*i*-pyrotartaric acid, *citrapyrotartaric acid*, *propanedicarboxylic acid*), from oxidation of β -aldehydisobutyric acid (PERKIN and SPRANKLING), T., 19.
and anhydride, anilic acid and calcium salt (BONE and SPRANKLING) T., 848.
influence of *d*-pyrotartaric acid on the solubility of, in water (LADENBURG), T., 467; P., 1899, 73.
- Methylsuccinic acid**, β -bromo-, and *di*bromo-, action of sodium carbonate on (SEMENOFF), A., i, 867.
 β -cyano-, ethylic salt; hydrolysis; also action of methylic iodide on (BONE and SPRANKLING), T., 853.
- Methyltartronic acid**, formation of (POMMERHNE), A., i, 574.
- 6-Methylterephthalic acid**, 2-iodo- (NOYES), A., i, 285.
- 1-Methyltetrahydroquinoline**, molecular refraction of (POPE and PEACHEY), T., 1115.
3-nitro-1-nitroso-, and 3-nitro- (STOERMER and DRAGENDORFF), A., i, 45.
- 2'-Methyltetrahydroquinoline**, nitro-nitroso-, 1(?)-nitronitroso-, and 3-nitro- (STOERMER and DRAGENDORFF), A., i, 45.
- 2'-Methyltetrahydroquinolines**, *l*- and *i*-, molecular refraction of (POPE and PEACHEY), T., 1115.
- 3-Methyltetrahydroquinoline**, 1-nitro-1'-nitroso-, 1-nitro-, and 2(or 4)-nitro- (STOERMER and DRAGENDORFF), A., i, 45.
- Methyltetrahydrotrimesic acid** (WOLFF and HEIP), A., i, 515.
- Methyltetramethylene-1:3-disulphide**, and -1:3-disulphone (AUTENRIETH and WOLFF), A., i, 580.
- 1-Methyl- α -tetramethylpyrrolidine- β -carboxylamide**, and 1-Methyl- α -tetramethylpyrrolidine- β -carboxylamide (PAULY and ROSSBACH), A., i, 773.
- Methylthiocarbimide**, effect of pressure on, melting point curve of (TAMMANN), A., ii, 636.
- Methyl-*o*-toluidine**, and 4-nitro- and 3-nitro-derivatives (GNEHM and BLUMER), A., i, 265.
4-chloro-, and 4-chloronitroso-, 4:3(?)-chloronitronitroso-, 4:3-chloronitro-, 4:3-chloramino-, and 3:5-dinitronitroso- (STOERMER and HOFFMANN), A., i, 44.
- Methyl-*m*-toluidine**, nitronitroso-[Me: N(NO)Me: NO₂=1:3:6(?)], and nitro- (STOERMER and HOFFMANN), A., i, 44.
- Methyl-*o*-toluidine-5-sulphonic acid**, and 3-nitro-derivative (GNEHM and BLUMER), A., i, 266.
- α -2'-Methyltoluylenehydrate-2-carboxylic acid**. See α -Hydroxy-2'-methylbibenzyl-2-carboxylic acid.
- Methyltriazene**, *bis*aminoimino-. See Triazendicarbodiamidine.
- Methyltriazencarboxylic acid**, aminoimino-. See Triazendicarbamidine.
- Methyltriazole**, amino-, and acetyl and benzoyl derivatives, chloro- (THIELE and MANCHOT), A., i, 167.
- Methyltriazoleazo-dimethylaniline**, and - β -naphthylamine (THIELE and MANCHOT), A., i, 167.
- 1-Methyl-2:3:4-triphenylcyclo- Δ^6 -hexenone-5** and its oxime (GOLDSCHMIEDT and KNÖPPER), A., i, 141.
- Methylurazole** (CUNEO), A., i, 9.
- Methylurethane**, nitroso-, constitution of (BRÜHL), A., i, 871.
behaviour of, towards alcoholic potash (VON PECHMANN), A., i, 134.
- Methyl-violet**, formation of (WEDEKIND and GONSWA), A., i, 806.
molecular weight of, in water or alcohol (KRAFFT), A., ii, 472.
- Methylxanthic acid**, potassium salt, electrolysis of solution of (SCHALL and KRASZLER), A., i, 414.

- 1-Methylxanthine**, bromo- (KRÜGER and SALOMON), A., ii, 233.
- 7-Methylxanthine**. See Heteroxanthine.
- Methylxanthines**, physiological action of (LUSINI), A., ii, 317.
- Methyl-m-xylylidine**, and its salts and acetyl derivative (FRIEDLÄNDER and BRAND), A., i, 351.
- and nitroso- and nitro-derivatives (PINNOW and OESTERREICH), A., i, 203.
- 4-Methyl-m-xylylenediamine**, and its hydrochloride (PINNOW and OESTERREICH), A., i, 203.
- Mezcaline**, physiological action of (DIXON), A., ii, 681.
- Mica**, optical constants and composition (ZSCHIMMER), A., ii, 768.
- heavy metals in (STELZNER), A., ii, 107.
- action of water on (CLARKE), A., ii, 109.
- See also Baddeckite, Biotite, Lepidomelane.
- Microcline**, pseudomorphous, from Altai Mountains (JEREMÉEFF), A., ii, 673.
- Micro-organisms**, pathogenic, chemical activity of (HUGOUNENQ and DOYON), A., ii, 376.
- Milk**, freezing point of (WINTER), A., ii, 232.
- human, composition of (ADRIANCE), A., ii, 115.
- relation of ash of, to ash of newborn infant (HUGOUNENQ), A., ii, 682.
- mare's and cow's, presence of opalisin in (WRÓBLEWSKI), A., ii, 232.
- analysis of, apparatus for rapid (MACDOUGALD), A., ii, 582.
- condensed, analysis of (HYDE), A., ii, 532.
- analysis of sour (DE KONINGH), A., ii, 707.
- apparatus for estimation of total solids and fat in (SONN), A., ii, 709.
- detection of formaldehyde in (LEONARD and SMITH), A., ii, 454; (VANINO), A., ii, 703; (LEYS), A., ii, 819.
- detection of the previous heating of (STORCH), A., ii, 76.
- detection of nitrates in (FRITZMANN), A., ii, 54; (ACKERMANN), A., ii, 248.
- detection of salicylic and benzoic acids in (BREUSTEDT), A., ii, 532.
- detection of sucrose in (CAYAUX), A., ii, 254.
- detection of sucrose and boric acid in (DE KONINGH), A., ii, 708.
- estimation of boric acid in (GOOCH and JONES), A., ii, 332.
- Milk**, estimation of fat in (KÜHN), A., ii, 582; (RICHMOND and ROSIER), A., ii, 708; (BONNEMA; TIMPE; WINDISCH), A., ii, 822.
- estimation of phosphoric acid in (NEUMANN), A., ii, 54.
- estimation of added water in (WOODMAN), A., ii, 618.
- See also Agricultural chemistry.
- Milk-sugar**. See Lactose.
- Millet**. See Agricultural chemistry.
- Minerals** from Belgium (CESARO), A., ii, 433.
- from Swaziland (PRIOR), A., ii, 433.
- origin of gases evolved on heating (TRAVERS), A., ii, 769.
- artificial formation of, in magmas (MOROZEWICZ), A., ii, 762.
- secondary, in andesite from Santorin (LACROIX), A., ii, 305.
- detection of constituents of, in the dry way (FLORENCE), A., ii, 51.
- estimation of carbonic anhydride in (MARSHALL), A., ii, 249.
- Minerals, new**. See:—
- Arzrunite.
- Baddeckite.
- Carnotite.
- Cedarite.
- Cupro-goslarite.
- Glaucamphibolite.
- Goldschmidtite.
- Hardystonite.
- Lagoriolite.
- Loranskite.
- Mitchellite.
- Paralaurionite.
- Philipstadite.
- Rafaelite.
- Stelznerite.
- Széchenyiite.
- Thalénite.
- Torrensit.
- Viellaurite.
- Mineral oils**. See Petroleum.
- Mineral sulphates** from Montana (HILLENBRAND), A., ii, 302.
- Mineral veins**, origin of (STELZNER), A., ii, 107.
- Mineral water**. See Water, mineral.
- Mirabilite**, formation of, in the Caspian Sea (KUSNETZOFF), A., ii, 303.
- Mitchellite** from North Carolina (PRATT), A., ii, 495.
- formation of, in magmas (PRATT), A., ii, 758.
- Molasses**, composition of (DICKSON and MALPEAUX), A., ii, 509.
- estimation of sucrose in (LING and BAKER), A., ii, 67.
- See also Agricultural chemistry.

- Moldavite**, composition of (JOHN), A., ii, 767.
- Molecular volume**. See Volume, molecular.
- Molybdenite**, bismuthiferous (MICHEL), A., ii, 561.
- Molybdenum** in rocks from the United States (HILLEBRAND), A., ii, 112.
action of, on sulphuric acid (ADIE), P., 1899, 133.
- Molybdenum compounds**, analysis of (BREARLEY), A., ii, 129, 336.
- Molybdenum** iron carbide (WILLIAMS), A., ii, 158; (CARNOT and GOUTAL), A., ii, 293.
oxide (MARCHETTI), A., ii, 295.
reduction of, by aluminium (FRANCK), A., ii, 103.
- Molybdic acid**, reduction of, by hypophosphorous acid (EBAUGH and SMITH), A., ii, 489.
- Iodomolybdates**, constitution of (ROSENHEIM and LIEBKNECHT), A., ii, 743.
- Molybdioidic acid** (CHRÉTIEN), A., ii, 363.
- Substance**, $\text{MoO}_5\text{N}_3\text{H}_9$, obtained from ammonium molybdate and hydroxylamine hydrochloride (KOHLSCHÜTTER and HOFMANN), A., ii, 652.
silicide (WARREN), A., ii, 158.
- Molybdenum organic compounds** :—
Molybdictric, molybdinalic, molybdimucic, and molybdilactic acids, salts of (HENDERSON, ORR, and WHITEHEAD), T., 546; P., 1899, 107.
- Molybdenum**, estimation and separation of :—
estimation of small quantities of, in rocks (HILLEBRAND), A., ii, 112.
separation of mercury from (JANNASCH and ALFFERS), A., ii, 59.
- Monarda fistulosa* and *M. punctata*, oils of (KREMERS and HENDRICKS), A., i, 770.
- Monazite** from Bohemia (PREIS), A., ii, 668.
from Finland (RAMSAY and ZILLIACUS), A., ii, 562.
from Swaziland (PRIOR), A., ii, 434.
estimation of cerium in (JOB), A., ii, 334.
- Monocotyledons**. See Agricultural chemistry.
- Monzonite**, quartz-, from Sierra Nevada, U.S.A. (TURNER and others), A., ii, 499.
- Morfose**, and its osazone (LOEW), A., i, 850.
- Morin**, metallic derivatives of, and tetracetyl derivative (PERKIN), T., 436, 448; P., 1899, 65, 66.
- Morin**, tetrabromo-, mono-, and di-potassium salts of (PERKIN), T., 437; P., 1899, 65.
- Morphenol**, constitution of (VONGERICHTEN), A., i, 307, 650.
and its methylic ether; its reduction and acetyl derivative (VONGERICHTEN), A., i, 307.
- β -Morphimethine**, methiodide, and acetate (VONGERICHTEN), A., i, 965.
- Morphine**, constitution of (CAUSSE), A., i, 394; (KNORR), A., i, 463.
heat of neutralisation of, by dilute or gaseous hydrochloric acid (LEROY), A., ii, 632.
hydrated, heat of combustion, formation and neutralisation of (LEROY), A., ii, 465.
derivatives of (MERCK; VONGERICHTEN), A., i, 649; (WESENBERG), A., i, 650; (HESSE), A., i, 724.
alkylic carbonates (MERCK), A., i, 649.
d- and *l*-mandelates (MCKENZIE), T., 968.
triacetyl derivative (CAUSSE), A., i, 394.
benzylc ether, and its hydrochloride ("peronine") (MERCK), A., i, 649.
ethylic ether, and its hydrochloride (MERCK), A., i, 649; (HESSE), A., i, 724.
periodide (PRESCOTT), A., i, 90.
detection of (MELZER), A., ii, 193; (SEYDA), A., ii, 344.
estimation of, in opium (THOMS), A., ii, 194; (MONTMARTINI and TRASCIATTI), A., ii, 619; (GORDIN and PRESCOTT), A., ii, 714.
- Morphol** and its quinone, constitution of (VONGERICHTEN), A., i, 307, 650.
- Morpholine ring**, exhaustive methylation of (KNORR and MATTHES), A., ii, 462.
- Morphothebaine**, and triacetyl and methiodide derivatives (FREUND), A., i, 308.
- Moulds**, composition of mycelium of (MARSHALL), A., ii, 44.
action of, on glucosides (PURIEWITSCH), A., ii, 683.
fermentation of sugars by, in presence of nitrogenous matter (DUBOURG), A., ii, 376.
- Mucic acid**, action of acetic anhydride on, in presence of sulphuric acid (SKRAUP), A., i, 112.
action of alkalis on (HOLLEMAN), A., i, 282.
mono-alkali salts of, action of molybdic, tungstic, titanous, and stannous oxides on (HENDERSON, ORR, and WHITEHEAD), T., 550; P., 1899, 108.

- Mucobromic acid**, preparation of (SIMONIS), A., i, 741.
 action of nitrites on (HILL and TORREY), A., i, 788.
 phenylhydrazone of (BISTRZYCKI and SIMONIS), A., i, 392.
- Mucochloric acid**, preparation of (SIMONIS), A., i, 741.
- Mud** from the Red Sea (NATTERER), A., ii, 501.
 ("gytje") from Sandefjord, Norway (BÖDTKER), A., ii, 39.
- Mud volcanoes** of Achtala (MELIKOFF), A., ii, 229.
- Mulberry leaves**. See Agricultural chemistry.
- Murexide** from uric acid, hypoxanthine, xanthine, theobromine, and caffeine (VITALI), A., i, 117.
- Muscle**, causes of fatigue of (LEE), A., ii, 312.
 chemical excitation of (ZENNECK), A., ii, 604.
 heat-rigor of (VERNON), A., ii, 567.
 absorption of liquids by (LOEB), A., ii, 503.
 proteids of (STEWART and SOLLMAN), A., ii, 680.
 influence of the proteids on electrical conductivity of extracts of (STEWART), A., ii, 680.
 amount of urea in (SCHÖNDORFF), A., ii, 373.
- Muscovite**, action of soda solution on (FRIEDEL), A., ii, 564.
- Must**, sterilised, wine making with (ROSENSTIEHL), A., ii, 508.
- Mustard**, analysis of (HEHNER and SKERTCHLY), A., ii, 702.
- Mustard**. See also Agricultural chemistry.
- Mustard oil**, composition of (JORGENSEN), A., ii, 46.
 amount of arachidic acid in (ARCHBUTT), A., ii, 340.
 and spirit of mustard, estimation of (GADAMER), A., ii, 455, 712; (GRÜTZNER), A., ii, 530.
- Mycoblastus sanguinarius*, presence of stictaurin and atranoric acid in (ZOPF), A., i, 716.
- Myelin substances** of the brain and egg-yolk (ZUELZER), A., ii, 504.
- Myricetin**, potassium derivative of (PERKIN), T., 441; P., 1899, 65.
- Myristic acid**, physical constants of (SCHEIJ), A., i, 668.
 and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471.
 sodium salt, boiling point of solutions of, in alcohol (KRAFFT), A., ii, 471.
- Myristic acid**, separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Myrticolarin**, potassium derivative of (PERKIN), T., 440; P., 1899, 65.

N.

Naphthalanmorpholine (KNORR), A., i, 463.

and salts, nitrosamine and benzoyl derivative (KNORR), A., i, 782.

α - and β -Naphthaldehydes, behaviour of, towards acetic anhydride and sodium acetate (ROUSSET), A., i, 296, 297.

Naphthalene, in lignite tar (OEHLER), A., i, 816.

melting point of, influence of pressure on (HULETT), A., ii, 469; (TAMMANN), A., ii, 635.

depression of freezing point of β -naphthol by (BRUNI), A., ii, 356.
 vapour pressure of (ALLEN), P., 1899, 122.

osmotic pressure of ethereal solutions of (GOODWIN and BURGERS), A., ii, 273.

equilibrium between acetone, water, and (SNELL), A., ii, 408.

equilibrium between benzene, diphenylamine and; between benzene, β -naphthol and (BRUNI), A., ii, 406.
 molecular weight of alcohols in (BILTZ), A., ii, 634.

solutions of, in aqueous acetone (CADY), A., ii, 82.

solutions, solid and liquid, of, in chloracetic acid, or glycollic acid, and their freezing points (CADY), A., ii, 405.

behaviour of, towards fused alkali nitrates (NÄGELI), A., i, 916.

1:4-Naphthalenedisulphonic acid, amide, and anilide, and 1'-amino-, sodium hydrogen salt of (GATTERMANN), A., i, 519.

1:4'-Naphthalenedisulphonic acid, β -amino- and β -nitro- (FRIEDLÄNDER and FISCHER), A., i, 709.

α -Naphthaleneindigo, and its sulphonic acids (WICHELHAUS), A., i, 636.

β -Naphthaleneindigo, preparation of (WICHELHAUS), A., i, 636.

Naphthalene-1-sulphin-2-sulphonic, -4-sulphonic, and -4:1'-disulphonic acids (GATTERMANN), A., i, 517.

α - and β -Naphthalenesulphonic trisulphides, sulphides, and tetrasulphides (TROEGER and HORNUNG), A., i, 905.

- Naphthalene-1:4:1'-trisulphonic acid**, and chloride (GATTERMANN), A., i, 519.
- Naphthalene-2:4:1'-trisulphonic acid**, sodium salt and chloride (GATTERMANN) A., i, 519.
- γ -Naphthalidoacridine** and its salts (O. FISCHER and DEMELER), A., i, 636.
- β -Naphthamide**, 1'-nitro- and 4'-nitro- (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 708.
- Naphthaphenazine**, 5-amino- and 3'-amino- (KEHRMANN and MATIS), A., i, 81.
- Naphthaphenosaffranine**, preparation of (SCHAPOSCHNIKOFF), A., i, 432.
- Naphthaprasindone**, 2-amino- (KEHRMANN and AEBI), A., i, 527.
- α - and β -Naphthaquinolines**, α -chloro- (FISCHER and KLITSCH), A., i, 635.
- α -Naphthaquinone**, condensation of, with diazomethane (VON PECHMANN and SEEEL), A., i, 948.
- 2:1'-diamino- (KEHRMANN and HABERKANT), A., i, 62.
- β -bromo-, identity with Meldola and Hughes' bromindone (LIEBERMANN and SCHLOSSBERG), A., i, 764.
- $\beta\beta$ -dinitroso-** (ZINCKE and OSSENBECK), A., i, 766.
- β -Naphthaquinone**, 3'-amino-, monoxime (KEHRMANN and MATIS), A., i, 81.
- β -Naphthaquinoneacetoacetic acid**, bromo-, ethylic salt (LIEBERMANN), A., i, 373.
- α - and β -Naphthaquinoneaminoguanidines** and **α -Naphthaquinonebisaminoguanidine** (THIELE and BARLOW), A., i, 48.
- α -Naphthaquinoneaminosalicylic acid** (FISCHER and SCHAAR-ROSENBERG), A., i, 283.
- α -Naphthaquinone-3-anilide**, 2-bromo- (LIEBERMANN and SCHLOSSBERG), A., i, 765.
- α -Naphthaquinone-2-benzylamide**, and 3-bromo-derivative (LIEBERMANN and SCHLOSSBERG), A., i, 765.
- α -Naphthaquinone-cyanacetic and dicyanacetic acids**, ethylic salts (LIEBERMANN), A., i, 522.
- α -Naphthaquinonediphenylmethane** (MÖHLAU), A., i, 61; (MÖHLAU and KLOPPER), A., i, 913.
- α -Naphthaquinoneimide**, 2:1'-diamino- and 2:3'-diamino- (KEHRMANN and HABERKANT), A., i, 62.
- Naphthaquinonimidesulphonic acid**, amino- (GAESS), A., i, 374.
- α -Naphthaquinonemalonic acid**, diethylic salt, *p*-toluicide of (LIEBERMANN), A., i, 523.
- bromo-, and 2-chloro-, ethylic salts (LIEBERMANN), A., i, 373.
- β -Naphthaquinonemalonic acid**, and its bromo-derivative, ethylic salts (LIEBERMANN), A., i, 373.
- α -Naphthaquinone-3-naphthylamide**, 2-bromo- (LIEBERMANN and SCHLOSSBERG), A., i, 765.
- α - and β -Naphthaquinonesemicarbazones** (THIELE and BARLOW), A., i, 48.
- Naphthaquinonesulphonic acid**, amino- (GAESS), A., i, 375.
- α -Naphthaquinonetetramethyldiaminodiphenylcarbinol** (MÖHLAU and KLOPPER), A., i, 913.
- α -Naphthaquinonetetramethyldiaminodiphenylmethane** (MÖHLAU), A., i, 61; (MÖHLAU and KLOPPER), A., i, 913.
- $\alpha\alpha$ -Naphthaquinoxaline**. See *Acenaphthenepheno-p*-diazine.
- Naphthasaffranol**, ethylic and methylic ethers (FISCHER and HEPP), A., i, 79.
- 1':1-Naphthasultone-4-sulphonic acid**, sodium salt (GATTERMANN), A., i, 519.
- iso-Naphthazarin**. See *Dihydroxy-naphthaquinone*.
- Naphthene**. See *cyclo*-Hexane.
- Naphthenes**, constitution of; origin of (BRUHN), A., i, 422.
- Naphthenglycol** (*cyclohexenyl glycol*) (MARKOWNIKOFF), A., i, 24.
- Naphthenic acids**, properties of the salts of (CHARITSCHKOFF), A., i, 423.
- tert-Naphthénol** (MARKOWNIKOFF and RUDEWITSCH), A., i, 533.
- $\alpha\beta$ -Naphthimidazole**, and its salts (FISCHER), A., i, 641.
- β -Naphthoic acid**, 2'-amino-, 4-nitro-, 1-nitro-, and 4'-nitro- (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 708, 709.
- α -Naphthol**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
- detection of, in β -naphthol (DUBOSC), A., ii, 192.
- estimation of, in β -naphthol (PROCHÁZKA and HERMAN), A., ii, 65.
- α -Naphthol**, triamino-, hydrochloride (KEHRMANN and HABERKANT), A., i, 62.
- di*bromo-, behaviour towards fuming nitric acid (LIEBERMANN and SCHLOSSBERG; MELDOLA), A., i, 372.
- tri*nitro-, constitution of (KEHRMANN and HABERKANT), A., i, 62.
- β -Naphthol**, freezing points of solutions of naphthalene in (BRUNI), A., ii, 356.

- β -Naphthol**, equilibrium between picric acid, ethylenic bromide and; between benzene, naphthalene and (BRUNI), A., ii, 406.
action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
behaviour of, towards certain salts of copper (FOSSE), A., i, 529.
detection of α -naphthol in (DUBOSC), A., ii, 192.
estimation of small amounts of α -naphthol in (PROCHÁZKA and HERMAN), A., ii, 65.
- β -Naphthol**, *d*-nitro- constitution of (KEHRMANN and MATIS), A., i, 62.
- β -Naphtholaminoguanidine**, nitroso-, nitrate (THIELE and BARLOW), A., i, 48.
- β -Naphtholazo-dyes**, anhydro-formation of (BAMBERGER), A., i, 722.
- α -Naphtholbenzein**, use of, in alkalimetry (GLASSER), A., ii, 573.
- 2-Naphthol-4:1'-disulphonic acid**, thio-, sodium salt (GATTERMANN), A., i, 518.
- β -Naphtholsemicarbazone**, nitroso- (THIELE and BARLOW), A., i, 49.
- 1-Naphthol-2-sulphonic acid**, thio-, tin sodium salt (GATTERMANN), A., i, 518.
- 1-Naphthol-4-sulphonic acid**, thio-, salts (GATTERMANN), A., i, 518.
- 1-Naphthol-2'-sulphonic acid**, 2:4-*di*-amino-, hydrochloride (GAESS), A., i, 374.
- α -Naphthonitrile**, 4'-amino- (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 709.
- β -Naphthonitrile**, 1'-amino-, 2'-amino-, 1-nitro-, 1'-nitro-, and 4'-nitro- (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 708, 709.
- α - and β -Naphthonitriles**, action of cuprous chloride on (RABAUT), A., i, 557.
- Naphthopieric acid**, reduction of (KEHRMANN and HABERKANT), A., i, 62.
- 1:1'-Naphthoylazomethylene** (HERMS), A., i, 617; (BEREND and HERMS), A., i, 824.
- 1:1'-Naphthoyldibromomethylene** (HERMS), A., i, 617; (BEREND and HERMS), A., i, 824.
- 1:1'-Naphthoylchloromethylene** (BEREND and HERMS), A., i, 824.
- 1:1'-Naphthoylhydrazimethylene** (HERMS), A., i, 617; (BEREND and HERMS), A., i, 823.
- 1:1'-Naphthoylmethylene-*m*-nitrosoisobenzylideneazine** (HERMS), A., i, 617; (BEREND and HERMS), A., i, 824.
- α - and β -Naphthylacrylic acids** (ROUSSET), A., i, 296.
- α -Naphthylamine**, molecular depressions in, and latent heat of fusion of (STILLMANN and SWAIN), A., ii, 728.
melting point of, influence of pressure on (HULETT), A., ii, 469.
- β -Naphthylamine**, compounds of, with metallic salts (MATTHEWS), A., ii, 296.
- 1-nitro-** (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 708.
- Naphthylamines**, methylation of (PINNOW), A., ii, 588.
- 2':1-Naphthylaminesulphonic acid**, colouring matters from (NOELTING and BIANCHI), A., i, 874.
- α - and β -Naphthylbenzidines** (MERZ and STRASSER), A., i, 917, 918.
- α - and β -Naphthylcarbamides** (WALTHER and WLODKOWSKI), A., i, 591; (YOUNG), A., i, 917.
- α - and β -Naphthylidithiocarbazinic acids**, methylic, ethylic, and benzylic salts (BUSCH and BEST), A., i, 955, 956.
- Naphthylidithiodiazolonesulphonic acid** (BUSCH and MÜNKER), A., i, 953.
- α - and β -Naphthylidithiodiazolonethiol**, and its benzoyl derivative, methylic ether, and *disulphide* (BUSCH and MÜNKER), A., i, 952.
- Naphthylene**. See *cyclo*-Hexene.
- 1:1'-Naphthylenebis-hydrazimethylene** (HERMS), A., i, 618; (BEHREND and HERMS), A., i, 824.
- 1:1'-Naphthylenehydrazimethylene-*m*-nitrosoisobenzylideneazine** (HERMS), A., i, 617; (BEREND and HERMS), A., i, 824.
- 1:1'-Naphthylenebis-*m*-nitrosoisobenzylideneazine** (HERMS), A., i, 618; (BEREND and HERMS), A., i, 824.
- α - and β -Naphthylethylthiosemicarbazides** (MARCKWALD), A., i, 505.
- β -Naphthyl-glucoside** (RYAN), T., 1055; P., 1899, 196.
- β -Naphthyl *disulphide***, formation of (CURTIUS and LORENZEN), A., i, 150.
methylic ether, behaviour of, towards *isobutylic* bromide (COHEN), A., i, 617.
- α - and β -Naphthyl *tri*- and *tetra*-sulphides** (TROEGER and HORNUNG), A., i, 906.
- α - and β -Naphthylmethylthiodiazoline-thiols**, and *disulphide*, and methylic ether of former (BUSCH and BEST), A., i, 956.
- α - and β -Naphthylmethylthiosemicarbazide**, and the thiodiazolone of latter (MARCKWALD), A., i, 505.
- β -Naphthylloxamic acid** (FRIEDLÄNDER, HEILPERN, and SPIELFOGEL), A., i, 708.

- α - and β -Naphthylpentahydro-1:3:5-thiadiazine (BUSCH and BEST), A., i, 955, 956.
- $\beta\alpha$ -Naphthyl- α -phenylcarbamide (MANUELLI and COMANDUCCI), A., i, 888.
- α -Naphthylpropylene, and picrate (ROUSSET), A., i, 296.
- α -Naphthylpropylenecarboxylic acid (ROUSSET), A., i, 296.
- α - and β -Naphthyl-propylsulphones, and -isopropylsulphones (TROEGER and UHDE), A., i, 607.
- β -Naphthylisocresindone, and salts (FISCHER and HEPP), A., i, 78.
- β -Naphthylsulphonamide, formation of (CURTIUS and LORENZEN), A., i, 150.
- β -Naphthylsulphonazide (CURTIUS and LORENZEN), A., i, 150.
- α - and β -Naphthylsulphone-butyric and -isobutyric acids, and salts, chlorides, and dibromo-derivatives (TROEGER and UHDE), A., i, 606, 608.
- β -Naphthylsulphonehydrazide (CURTIUS and LORENZEN), A., i, 149.
- β -Naphthylthiodiazolinethiol (BUSCH and BEST), A., i, 956.
- Narceine, preparation of, from narcotine (FRANKFORTER and KELLER), A., i, 781.
- Narcotine, heat of combustion and formation of, and of combination with hydrochloric acid (LEROY), A., ii, 631.
- action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
- methiodide, diiodo- (FRANKFORTER and KELLER), A., i, 782.
- Nasturtium acid (GADAMER), A., i, 930.
- Nasturtium officinale*, glucoside and essential oil of (GADAMER), A., i, 930.
- Nataloin and its acetyl and tri- and tetra-benzoyl derivatives (LÉGER), A., i, 821.
- Natrolite, vapour pressure of (TAMMANN), A., ii, 8.
- Nectandra caparrapi*, oil of (TAPIA), A., i, 533.
- Neodymium, atomic weight of (JONES), A., ii, 292.
- bands in spectrum of didymium from monazite sands (URBAIN), A., ii, 425.
- separation of praseodymium from (SCHÉELE), A., ii, 291.
- Neon (RAMSAY), A., ii, 211.
- position of, in periodic system (CROOKES), A., ii, 552; (HOWE), A., ii, 740.
- preparation and refraction of (RAMSAY and TRAVERS), A., ii, 746.
- spectrum of, in high vacua obtained by freezing air (DEWAR), A., ii, 741.
- Nephelite from Norway (MOROZEWICZ), A., ii, 765.
- Neroli, oil of (CHARABOT and PILLET), A., i, 620.
- presence of methyle anthranilate in (WALBAUM), A., i, 620, 621; (E. and H. ERDMANN), A., i, 621.
- Nerve-fibres, proportion of protagon in normal and degenerated (NOLL), A., ii, 568.
- degenerated, chemistry of (MOTT and BARRATT), A., ii, 317.
- Neurine, hydrochloride, precipitation of, with phosphotungstic acid; also its picrate, platinumchloride, aurichloride, and mercurichlorides (GULEWITSCH), A., i, 106.
- presence of, in the intestine (NESBITT), A., ii, 310.
- physiological action of (MOTT and HALLIBURTON), A., ii, 315, 781.
- Neutralisation phenomena among diazo-compounds (HANTZSCH, SCHÜMANN, and ENGLER), A., i, 687.
- Nickel, atomic weight of (LANDOLT, OSTWALD, and SEUBERT), A., ii, 87; (RICHARDS and CUSHMANN), A., ii, 488.
- action of, on copper silicide, arsenide, or antimonide (LEBEAU), A., ii, 427.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- action of sulphuric and sulphurous acids on (BERTHELOT), A., ii, 283.
- Nickel alloys with calcium (MOISSAN), A., ii, 154; (TARUGI), A., ii, 749.
- with iron, magnetic behaviour of (OSMOND), A., ii, 352.
- Nickel salts, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- reduction of, by calcium carbide (TARUGI), A., ii, 749.
- Nickel antimonate (SENDERENS), A., ii, 557.
- thioantimonite (POUGET), A., ii, 663.
- ortharsenite, formation of (REICHARD), A., ii, 23.
- azoimide, basic (CURTIUS and RISSOM), A., ii, 92.
- chloride, hydrates of (KUZNETZOFF), A., ii, 658.
- lead iodide (MOSNIER), A., ii, 222.
- molybdates (CHRÉTIEN), A., ii, 363.
- nitrate, hydrates of (FUNK), A., ii, 210.
- lead thallium, and barium thallium nitrites (PRZIBYLLA), A., ii, 223.
- oxide, decomposition of carbon monoxide in presence of (BOUDOUARD), A., ii, 417, 595.

- Nickel oxide**, reduction of, by aluminium (FRANCK), A., ii, 103.
 sulphate, hydroxylamine compound of (UHLENHUTH), A., ii, 661.
 sulphide, theory of formation of (MORGAN and GOTTHELF), A., ii, 626.
- Nickel organic compounds** :—
 Nickel pyridine salts (REITZENSTEIN), A., i, 161.
 hypophosphite phenylhydrazine and thiosulphate phenylhydrazine (MOITESSIER), A., i, 688.
 Diethylenediaminenickel, Dipropylenediaminenickel, Propylenediaminenickel, Tetraquoethylenediaminenickel, Triethylenediaminenickel, and Tripropylenediaminenickel salts (WEBER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.
- Nickel**, detection, estimation, and separation of :—
 detection of (PAPASOGLI), A., ii, 335.
 influence of ammonium salts on precipitation of, by ammonia (MARSHALL), A., ii, 696.
 estimation of, colorimetrically (LUCAS), A., ii, 614.
 estimation of, volumetrically (GIORGIS), A., ii, 452.
 estimation of, in presence of iron (NEUMANN), A., ii, 386.
 estimation of silver, gold, and mercury in presence of (KOLLOCK), A., ii, 811.
 separation of cobalt from (COEHN; HAVENS), A., ii, 127.
 separation of iron from (BREARLEY), A., ii, 815.
 separation of mercury from (JANASCH and ALFFERS), A., ii, 60.
 separation of zinc from (DÖHLER), A., ii, 811.
- Nickel-boracite**, containing iodide (ALLAIRE), A., ii, 156.
- Nickel-steel**, effect of low temperatures on magnetic properties of (OSMOND), A., ii, 630.
- Nicotinanilide** (PICTET and SUSSDORFF), A., i, 164.
- Nicotinazide** (CURTIUS and MOHR), A., i, 73.
- Nicotine**, amount of, in tobacco (SINNHOLD), A., ii, 48.
 heats of combustion, formation, and solution of (BERTHELOT and ANDRÉ), A., ii, 400.
 action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 648, 649.
 hydrochloride, double salts of, with cadmium chloride (GLASER), A., i, 829.
- Nicotine**, estimation of, in tobacco (KELLER), A., ii, 194; (HEFELMANN), A., ii, 261.
- Nicotinic acid** (*pyridine-3-carboxylic acid*), nitrate, ethylic salt, and piperidine salt (PICTET and SUSSDORFF), A., i, 164.
 2:6-dichloro-, from action of phosphorus pentachloride on ethylic 2-hydroxy- $\Delta^{2,4}$ -hydropyridone-3-carboxylate (GUTHZEIT and LASKA), A., i, 261.
- Nicotinohydrazide** (CURTIUS and MOHR), A., i, 73.
- Nicotino-*p*-toluidide** (PICTET and SUSSDORFF), A., i, 165.
- Niobium** :—
 Perniobic acid, preparation of (MELIKOFF and PISSARJEWSKY), A., ii, 491.
- Nitragin**. See Agricultural chemistry.
- Nitramines**, aliphatic, and their isomerides, action of sulphuric acid on, and their constitution (FRANCHIMONT and UMBROVE), A., i, 106.
- Nitrates**. See under Nitrogen.
- Nitre**, from New South Wales (MINGAYE), A., ii, 670.
- Nitric acid**, **Nitric oxide**, **Nitric peroxide**. See under Nitrogen.
- Nitrification**. See Agricultural chemistry.
- Nitrile**, $C_{23}H_{21}N_3O_2$, from benzaldehyde and phenyl-*p*-anisidoacetonitrile (MILLER, PLÖCHL, and SCHEITZ), A., i, 128.
 $C_{25}H_{25}ON_3$, from cuminaldehyde and benzyldeneaniline (MILLER, PLÖCHL, and GERNGROSS), A., i, 127.
- Nitriles**, conductivity of salt solutions in (KAHLENBURG and LINCOLN), A., ii, 397.
 action of cuprous chloride on (RABAUT), A., i, 557.
- Nitriles**. See also :—
 Acetamidomesitylenonitrile.
 Acetobenzyl cyanide.
 Acetonitrile.
 Acetoxymethoxybenzonitrile.
 Allophanylazobutyronitrile.
 Allophanylhydrazoisobutyronitrile.
 Allylacetoneitrile (*pentenoic acid, nitrile of*).
 Anilinopropionitrile.
 Benzonitrile.
 Benzoylbenzylmalononitrile.
 Benzylmalonodinitrile.
 Benzylmalononitrile.
 Benzylmethylmalononitrile.
 Butenonitrile.
iso-Butylacetoneitrile (*isohexonitrile*).

Nitriles. See also :—

γ -Butylerotonitrile (*octenoic acid, nitrile of*).
 Butyronitrile.
 Camphoeceonitrile.
 Capronitriles (*hexonitriles*).
 Caprylonitrile (*octonitrile*).
 Carbonamidohydrazopropionitrile.
 Citronellonitrile.
 Citrylideneacetoneitrile.
 Cumenylanilinoacetoneitrile.
 Diazoacetoneitrile.
 Dibenzoylacetoneitrile.
 Dibenzylmalononitrile.
 Diethyl-*o*-aminobenzonitrile.
 Diethylglycollonitrile.
 Diethylindoleninenitrile.
 β -Dimethylacrylonitrile (*pentenoic acid, nitrile of*).
 2 : 4-Dimethylbenzonitrile.
 γ -Dimethylcrotonitrile (*hexeno-nitrile*).
 Dimethylglycollonitrile (*α -hydroxyisobutyronitrile*).
 Dimethylindolenineformonitrile.
 Ethoxybenzonitrile.
 β -Ethylacrylonitrile (*γ -methylcrotononitrile*).
 Ethyl-*o*-aminobenzonitrile.
 α -Ethylcrotonitrile.
 Ethyleneacetoneitrile.
 Ethylmalononitrile.
 Fencholenonitrile.
 Glycollonitrile.
 Hexenonitrile.
 Hexonitrile and *iso*-Hexonitrile.
 Homopiperonylonitrile.
m-Hydroxybenzonitrile.
 Hydroxybutyronitriles.
 α -Hydroxyisohexonitrile.
 α -Hydroxyoctonitrile.
 α - and β -Hydroxypropionitriles.
 Hydroxyvaleronitrile.
 Indonemalononitrile.
 Lactonitriles.
 Methoxybenzonitrile.
 7-Methoxybutyronitrile.
 Methylacrylonitrile (*butenoic acid, nitrile of*).
 α -Methylcrotonitrile (*tiglonitrile*).
 β -Methylcrotonitrile.
 Methyleneaminoacetoneitrile.
 Methyleneethylglycollonitrile.
 α -Methylactonitrile (*β -hydroxyisobutyronitrile*).
 Methylactononitrile.
 Methylisopropylglycollonitrile.
 α - and β -Naphthonitriles.
 Octonitrile.
 Octonitrile.
 Pentenonitrile.
 Phenylacetoneitrile.

Nitriles. See also :—

Phenyl-*p*-anisidoacetoneitrile.
 Phenylglycollonitrile.
 Phenylhydroresorcydonitrile.
 Phenylmethylhydroresorcydonitrile.
cyclo-Propanecarboxydonitrile.
 Propionitrile.
 Propionylpropionitrile.
iso-Propylacetoneitrile (*isovaleronitrile*).
 β -*iso*-Propylacrylonitrile (*hexenoic acid, nitrile of*).
 Propylbenzonitrile.
 Pyruvoneitrile.
 Salicylonitrile.
iso-Succinodinitrile.
 Succinonitrile.
 Tiglonitrile.
p-Toluidinoacetoneitrile.
o-, *m*-, and *p*-Toluenitriles.
 γ -*p*-Tolyloxybutyronitrile.
 Triazendicarbamidine nitrile (*diazoguanidine cyanide*).
 Tribenzoylacetoneitrile.
 Trimethylacrylonitrile.
 Triphenylglutaronitrile.
 Valeronitrile.
iso-Valeronitrile.
 Vinylacetoneitrile (*butenoic acid, nitrile of*).
Nitro-compounds of the methane series, action of reducing agents on (KONOW-ALOFF), A., i, 733.
iso-**Nitro-compounds** (HANTZSCH and VEIT), A., i, 401.
Nitroform and its potassium, sodium, ammonium, and silver salts (HANTZSCH and RINCKENBERGER), A., i, 404.
 mercury compound of (LEY and KISSEL), A., ii, 485.
Nitrogen, from action of sodium amalgam on sodium nitrite or nitrate (DIVERS), T., 87; P., 1898, 222.
 from carbamide, nitrous oxide in (RAYLEIGH), A., ii, 744.
 atomic weight of (DEAN), P., 1898, 174; (BERTHELOT), A., ii, 207.
 melting point and critical temperature of (DEWAR), A., ii, 741.
 pure or atmospheric, densities of (RAMSAY), A., ii, 745.
 liquid, mixtures of, with oxygen, densities of (LADENBURG and KRÜGEL), A., ii, 467.
 fractional diffusion of (RAMSAY and TRAVERS), A., ii, 22.
 diffusion of, through caoutchouc (D'ARSONVAL), A., i, 772.
 absorption of, by mixtures of magnesium with lime and sodium or lithium (HEMPEL), A., ii, 594.

Nitrogen, combination of, with carbon disulphide (BERTHELOT), A., ii, 648.

combination of, with oxygen, under the influence of the electric discharge (BERTHELOT), A., ii, 648.

oxidation of, in explosion of carbon disulphide with air (DIXON and RUSSELL), T., 610; P., 1899, 115.

quintivalent, stereochemistry of (ASCHAN), A., i, 542.

asymmetric optically active compounds of (POPE and PEACHEY), T., 1127; P., 1899, 192.

amidic and proteid, distinction between (MALLET), A., ii, 576.

Nitrogen chloride, injurious action of the fumes of (HENTSCHEL), A., ii, 569.

chlorides, substituted (CHATTAWAY and ORTON), T., 1046; P., 1899, 152.

iodide, composition of (CHATTAWAY), P., 1899, 18; (NORRIS and FRANKLIN), A., i, 664.

preparation and properties of; action of light on; action of alkalis, water or hydrogen peroxide on (CHATTAWAY and ORTON), P., 1899, 17, 18, 20.

action of reducing agents on; action of acids on (CHATTAWAY and STEVENS), P., 1899, 17, 19.

Nitrogen monoxide (*nitrous oxide*), formed by action of sodium amalgam on sodium nitrite or nitrate;

action of, sodium amalgam on (DIVERS), T., 87; P., 1898, 222; T., 95.

in nitrogen from carbamide (RAYLEIGH), A., ii, 744.

compressed, volatilisation of bromine in (VILLARD), A., ii, 144.

action of electric glow discharge on, and on mixture of, with hydrogen (MIXTER), A., ii, 267.

action of, on hydrazine (DE BRUYN), A., ii, 745.

action of, on seeds, seedlings, and water-plants (SANDSTEN), A., ii, 320.

Nitrogen dioxide (*nitric oxide*) boiling point and melting point of (LADENBURG and KRÜGEL), A., ii, 545.

nitric peroxide or nitrogen, diffusion of, into (DIXON and PETERKIN), T., 614, 624; P., 1899, 115.

absorption of, by solutions of ferrous salts (THOMAS), A., ii, 426.

absorption of, by solutions of sodium or potassium sulphite; action of, on silver nitrate (DIVERS), T., 82; P., 1898, 221.

Nitrogen dioxide (*nitric oxide*), action of, on chromous chloride (CHESNEAU), A., ii, 661.

action of electric glow discharge on, and on mixtures of, with hydrogen or carbon monoxide (MIXTER), A., ii, 267.

reduction of, by copper (GRAY), A., ii, 248.

estimation of (KNORRE and ARNDT), A., ii, 806.

Nitrogen trioxide (*nitrous anhydride*), formed by combination of nitric oxide and peroxide (DIXON and PETERKIN), T., 629; P., 1899, 116.

formed by electric discharge in attenuated air (DEWAR), P., 1899, 117.

formed by sparking a mixture of nitrogen and oxygen (BERTHELOT), A., ii, 648.

preparation of (DIVERS), T., 86; P., 1898, 222; (GROVES), P., 1898, 222.

Nitrogen tetroxide (*nitric peroxide*), dissociation of (LEDUC; POCHETTINO), A., ii, 729.

influence of inert gas on dissociation of; diffusion of, into nitrogen and other inert gases (DIXON and PETERKIN), T., 616, 619; P., 1899, 116.

diffusion of, into nitric oxide (DIXON and PETERKIN), T., 623, 627; P., 1899, 116.

action of, on sulphuric acid (LUNGE and WEINTRAUB), A., ii, 479.

Nitrogen acids:—

Nitric acid, fuming, preparation of (VANINO), A., ii, 479.

heat of dilution of (BERTHELOT), A., ii, 285.

surface tension of aqueous solutions of (FORCH), A., ii, 641.

influence of, on dissociation of chlorine in water (JAKOWKIN), A., ii, 736.

action of metals on, and electrolysis of (FREER and HIGLEY), A., ii, 480.

electrolytic reduction of (TOMMASI), A., ii, 138.

decomposition of, by action of light (BERTHELOT), A., ii, 1.

decomposition of, at low temperatures; action of free hydrogen on (BERTHELOT), A., ii, 21.

heat developed in decomposition of potassium cyanide by (BERTHELOT), A., ii, 737.

aminolytic constant of aniline in presence of (GOLDSCHMIDT and SALCHER), A., ii, 551.

Nitrogen acids :—

Nitric acid, detection of, in waters (CIMMINO; WINKLER), A., ii, 805.

detection of, in milk (FRITZMANN), A., ii, 54; (ACKERMANN), A., ii, 248.

estimation of (BLYTH), P., 1899, 50; (ACKERMANN), A., ii, 329.

estimation of nitrogen in (HARTWELL and WHEELER), A., ii, 519.

Nitrates, hydrates of (KASTLE), A., ii, 210.

action of dilute sulphuric, hydrochloric or phosphoric acid on, in presence of ether (TANRET), A., ii, 21.

reduction of, to nitrites by an enzyme in animal tissues (ABELOUS and GERARD), A., ii, 680, 681.

estimation of perchlorate in (BLATTNER and BRASSEUR), A., ii, 328.

See also Agricultural chemistry.

Nitrous acid, constitution of (KIESERITZKY), A., ii, 396.

preparation of (DIVERS), T., 86; P., 1898, 222; (GROVES), P., 1898, 222.

analysis of (ORLOFF), A., ii, 693.

distinction between ozone, hydrogen peroxide, and (ERLWEIN and WEYL), A., ii, 179.

estimation of (BLYTH), P., 1899, 50.

estimation of, in waters (WINKLER), A., ii, 805.

Nitrites, constitution of (DIVERS), T., 92.

formation of, from nitrates, by an enzyme in animal tissues (ABELOUS and GERARD), A., ii, 680, 681.

triple metallic (PRZIBYLLA), A., ii, 223.

Hyponitrous acid, solution of; properties of; estimation of (DIVERS), T., 113, 116; P., 1898, 225.

Hyponitrites, methods of preparing (DIVERS), T., 96.

preparation of, from nitrites through oxyamidosulphonate (DIVERS and HAGA), T., 77; P., 1898, 220.

Nitrogen, detection and estimation of:—

detection of, in organic compounds (RAIKOW), A., ii, 123; (RIEGLER), A., ii, 180.

estimation of, by Dumas's process (GRAY), A., ii, 248.

estimation of, by Kjeldahl's method, note on (ATTERBERG), A., ii, 124; (MAQUENNE and ROUX), A., ii, 381; (PREGI), A., ii, 382.

Nitrogen, estimation of :—

(nitric), estimation of, by Ulsch's process (BRANDT), A., ii, 806.

direct estimation of, in gaseous mixtures (SMITH), A., ii, 575.

estimation of, in presence of hydrogen and methane (JAEGER), A., ii, 526.

estimation of, in organic substances (WEDEMEYER), A., ii, 53; (HOPKINS), A., ii, 611; (BUDDE and SCHON), A., ii, 693.

estimation of, in nitrates (HARTWELL and WHEELER), A., ii, 519.

Nitrogen. See Agricultural chemistry.

Nitrogenous compounds, action of magnesium on (EIDMANN), A., i, 317.

action of oxidising agents on (OECHSNER DE CONINCK), A., i, 243.

Nitrogenous manures. See Agricultural chemistry.

Nitrogenous matter, influence of, on fermentation of sugars by yeasts and moulds (DUBOURG), A., ii, 376.

Nitro-group, detection of the, in organic compounds (MULLIKEN and BARKER), A., ii, 382.

Nitrosamines, non-electrolytic, behaviour of, with phosphorus pentachloride, acetyl chloride, and ammonia (HANTZSCH), A., i, 400.

Nitroso-compounds, behaviour of, towards methylene derivatives (EHRICH and SACHS), A., i, 883.

Nitrosylsulphuric acid, formation of (LUNGE and WEINTRAUB), A., ii, 479.

“**Nitrous ether, spirit of**,” assay of (FISCHER and ANDERSON), A., ii, 617.

Nomenclature of univalent hydrocarbon radicles (VORLÄNDER), A., i, 553.

Nonane in lignite tar (OEHLER), A., i, 816.

dibromo- and dichloro- (*nonomethylene bromide and chloride*) (SOLOMINA), A., i, 562.

nitro- (WORSTALL), A., i, 399.

Nonanedicarboxylic acids. See:—

Heptylsuccinic acid.

β -Hexylglutaric acid.

Nonanetetracarboxylic acid. See Heptylidenebismalonic acid.

Nonenyl alcohol (2:6-dimethyl-2-heptene-6-ol), synthesis of (BARBIER), A., i, 323.

from action of alcoholic potash on geraniol (TIEMANN), A., i, 184.

iso-**Nonodilactone**, from the action of water on bromisobutylisoparacetic acid (FITTING and ERLNBACH), A., i, 339.

n-**Nonoic acid**, amylic salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.

- Nonomethylenediamine**, action of nitrosyl chloride on (SOLONINA), A., i, 562.
- Nonomethylenic bromide and chloride**. See Nonane, dibromo- and dichloro-.
- Nontronite** from Moravia (KOVÁK), A., ii, 671.
- Nonylenedicarboxylic acids**. See :—
Hexylitaconic acid.
Hexylcitraconic acid.
Hexylitaconic acid,
and Hexylmesaconic acids.
- Nopinolglycol acetate** (WAGNER and SLAWINSKI), A., i, 767.
- Norites** from the Transvaal (HENDERSON), A., ii, 111.
- Normal solutions**, preparation of (WAGNER), A., ii, 379.
- Nor-rhizocarpic acid**, and its diethylic salts (HESSE), A., i, 384.
- Noryohimbic acid** (SPIEGEL), A., i, 966.
- Nosite** (*nosean*), artificial (MOROZEWICZ), A., ii, 764.
- Nostoc punctiforme**, development of, in non-nitrogenous solutions, and growth under various conditions (BOUILHAC), A., ii, 238.
formation of chlorophyll by, in the dark (ÉTARD and BOUILHAC), A., ii, 46.
- Nucleic acid**, separation of, into α -, β -nucleic acids and nucleothymic acid, their properties, detection and decomposition products, and sodium salts (NEUMANN), A., i, 467.
- Nuclein** as a source of uric acid in the living body (JEROME), A., ii, 678.
relation of, ingestion of, to uric acid formation (HOPKINS and HOPE), A., ii, 117.
iron-, separation of, from papayotin, and its oxidising power (SACHAROFF), A., ii, 786.
- Nuclein bases**, conversion of, into uric acid by the action of tissue extracts (SPITZER), A., ii, 604.
- Nucleins**, properties, detection of, and estimation of phosphorus in (NEUMANN), A., i, 467.
- Nucleohiston**, reactions of (BANG), A., i, 836.
- Nucleo-proteids**, action of, on oxyhæmoglobin, and on glycogen (BOTTAZZI), A., i, 839.
- Nucleothymic acid**, its detection, sodium salt, and physiological action (NEUMANN), A., i, 467.
- Nut-shells**. See Agricultural chemistry.
- Nux vomica**, assay of (SQUIBB), A., ii, 535.
- O.**
- Oak**. See Agricultural chemistry.
- Oats**. See Agricultural chemistry.
- Obsidian** from Nicaragua (PETERSEN), A., ii, 38.
- Oceanic deposits**, chemical changes in (HARTLEY; MURRAY and IRVINE), A., ii, 437.
- n-Octane**, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
heat of combustion of (ZOUBOFF), A., ii, 589.
action of chlorosulphonic acid on (YOUNG), T., 173.
action of sulphuric acid on (WORSTALL), A., i, 19.
- n-Octane**, $\alpha\theta$ -dibromo- and $\alpha\theta$ -dichloro- (*octomethylenic bromide and chloride*), (SOLONINA), A., i, 562.
nitro- and dinitro- (WORSTALL), A., i, 399.
nitro-, action of stannous chloride on (KONOWALOFF), A., i, 733.
dinitro- (KONOWALOFF), A., i, 844.
- Octane** (*diisobutyl*), oxidation of, by nitric acid (MARKOWNIKOFF), A., i, 553.
dibromo- and dichloro- (diisocrotonylic bromide and chloride) (POGORZELSKY), A., i, 785.
- Octanedicarboxylic acids**. See :—
s-Diisopropylsuccinic acid.
 α -Methyl- β -isoamylsuccinic acid.
- n-Octane-mono- and -di-sulphonic acids** (WORSTALL), A., i, 19.
- cyclo-Octanone**. See Azelaone.
- Octaspartide**, tri-, tetra-, hex-, and octanilides, and tri-, tetra-, and pentaphenyloctanilides of (SCHIFF), A., i, 195.
- Octenoic acid** (*γ -butylcrotonic acid*). nitrile of (HENRY), A., i, 257.
- Octinene** (*dicrotonyl*), and action of iodine on (CHARON), A., i, 848.
- Octinene** (*diisocrotonyl*), and chloride, bromide, oxide, bromhydrin, and iodhydrin (POGORZELSKY), A., i, 785.
- Octinoic acid**, from the distillation of the isomeride of cineolenic acid (RUPE), A., i, 340.
- Octitol**, and its dibenzylidene compound and acetyl derivative (VINCENT and MEUNIER), A., i, 185.
- Octoaspartic acid**, action of sodium nitrite on (SCHIFF and SEVIERI), A., i, 674.
ammonium salt (SCHIFF), A., i, 674.
diamino- (SCHIFF and MARZICHI), A., i, 674.
- Octoaspartide**, action of ammonia on (SCHIFF; SCHIFF and MARZICHI), A., i, 674.
- Octoaspartidamide and Octoaspartotriamide** (SCHIFF and MARZICHI), A., i, 674.

n-Octoic acid (*caprylic acid*), physical constants of (SCHEIJ), A., i, 668.
 separation of, from other fatty acids (HOLZMANN), A., ii, 68.
 amide of, preparation of (ASCHAN), A., i, 14.
 amyl salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.
Octomethylenediamine, action of aqua regia on salts of (SOLONINA), A., i, 663.
 action of nitrosyl chloride on (SOLO-NINA), A., i, 562.
Octomethylene bromide and chloride. See Octane, dibromo- and dichloro-.
Octonitrile (*caprylonitrile*), α -chloro- (HENRY), A., i, 256.
Octylenedicarboxylic acid. See Methyl-*iso*amylmaleic acid.
Octylenedicarboxylic anhydride. See *β -iso*-Amylcitraconic anhydride.
Octylenic glycol, from action of potash on isobutaldol cyanhydrin (KOH), A., i, 328.
n-Octylic alcohol (*caprylic alcohol*), and its benzenesulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
 and *isooctylic* alcohol, action of sodium derivatives of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 670.
Octylic alcohol (*$\alpha\delta$ -dimethylhexylic alcohol*), δ -bromo- and δ -iodo- (*diisocrotonylic bromhydrin and iodohydrin*) (POGORZELSKY), A., i, 785.
Octyl- β -naphthacinchonic acid (SCHIMMEL and Co.), A., i, 923.
Enanthylic acid. See Heptoic acid.
Enanthylidenebismalonic acid. See Heptylidenebismalonic acid.
Enanthylidenecyanhydrin. See α -Hydroxyoctonitrile.
Oil. See Agricultural chemistry.
Oil cake. See Agricultural chemistry.
Oil of opoponax (TSCHIRCH and KNITL), A., i, 714.
Oils, refraction constants of (PROCTER), A., ii, 258.
 heat of bromination test for (GILL and HATCH), A., ii, 533.
 estimation of the iodine number of (ASCHMAN), A., ii, 71.
 estimation of free phosphorus in (LOUISE), A., ii, 807.
 drying, chemistry of (HEHNER and MITCHELL), A., ii, 190.
 Indian edible, properties and uses of (CROSSLEY and LE SUEUR), A., ii, 324.

Oils. See also :—
Abies canadensis L., oil from.
Alpinia malaccensis, oil from.
 Angostura bark, oil from.
 Arachis oil.
Aspidium filix mas, oil from.
 Balsam, oil of.
Barbarea praeox, oil from.
 Basil, oil of.
 Cananga oil.
 Caparrapi oil.
 Cardamoms oil.
 Cedar seed oil.
 Citronella oil.
Citrus bigaradia, oil from.
Cochlearia officinalis, oil from.
 Cocoa nut oil.
 Cognac oil.
Convolvulus scoparus, oil from.
 Cotton-seed oil.
 Curcas oil.
 Dill oil.
 Eucalyptus oils.
 Fir, oil of.
 Fish oil.
 Geranium oil.
 Hemlock, oil of.
 Heracleum oil.
 Indian edible oils.
 Jaborandi leaf oil.
 Jasmine, oil of.
 Juniper, oil of.
 Larch.
Larix Europaea, oil from.
 Lavender, oil of.
 Lemon-grass, oil of.
Lepidium sativum, oils from.
 Linseed oil.
Lippia citriodora, oil from.
 Maize oil.
 Mandarins, oil of.
 Matico oils.
 Melissa, oil of.
Monarda fistulosa, oil from.
Monarda punctata, oil from.
 Mustard oil.
Nasturtium officinale, oils from.
 Neroli oil.
 Olive oil.
Origanum Majorana, oil from.
 Peppermint, oil of.
 Pepperwort, oil of.
 Petit grain, oil of.
Picea nigra L. (or *alba* ?), oil from.
Pinus sylvestris L., oil from.
 Portugal, oil of.
 Quince-seed oil.
 Rape oil.
 Rosemary, oil of.
 Roses, oil of.
 Rosewood oil.
 Sandal wood oil.

Oils. See :—

- Sardine oil.
Satureja hortensis and *S. Montana*, oils from.
 Sesamé oil.
 Sod oil.
 Spike oil.
 Spruce, oil of.
Tanacetum balsamita L., oil from.
 Thyme, oil of.
Tropæolum majus, oil from.
 Vetiver oil.
 Wood oil, Japanese.
Xanthorrhæa hastilis, oil from.
- Oil shales**, microscopic examination of (BERTRAND), A., ii, 161.
- Okenite**, vapour pressure of (TAMMANN), A., ii, 8.
- Oleamide**, preparation of (ASCHAN), A., i, 14.
- Oleander**, Algerian, presence of strophanthin in (DUBIGADOUX and DURIEU), A., ii, 325.
- Olefines**, action of nitric anhydride and peroxide on (DEMJANOFF), A., i, 845.
- Oleic acid** and salts, conductivity of, in alcohols (DENNHARDT), A., ii, 351. and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471. isomerism of, with elaidic acid (ALBITZKY), A., i, 862. conversion of, into elaidic acid (FARNSTEINER), A., ii, 705. action of acetic anhydride on; also anhydride (ALBITZKY), A., i, 862. formation of a neutral substance on keeping (FAHRION), A., i, 862. rancidity of (SCALA), A., i, 478. estimation of (TWITCHELL), A., ii, 69; (FARNSTEINER), A., ii, 705.
- Oleic acid**, sodium salt, molecular weight of (KAHLENBERG and SCHREINER), A., ii, 203. or potassium salt, boiling point of solutions of, in water or alcohol (KRAFFT), A., ii, 471.
- Oleodistearin** and its iodine number and chloriodo-compound (HENRIQUES and KÜNNE), A., i, 330.
- Oleo-resin** of *Dacryodes hexandra*, composition of (MORE), T., 718; P., 1899, 150.
- Oleum cadi*, composition of (TROEGER and FELDMANN), A., i, 376.
- Olibano-resen** (TSCHIRCH and HALBEY), A., i, 69.
- Olibanum electrum*, constituents of (TSCHIRCH and HALBEY), A., i, 69.
- Oligoclase** from Victoria (HOWITT), A., ii, 566.

- Olive oil**, rancidity of (SCALA), A., i, 478. cements made from lime and (DÖRNER), A., ii, 554. detection of arachis oil in (VIERTH), A., ii, 583. iodine number of (ZEGA and MAJSTOROVIC), A., ii, 820.
- Olivine**, alteration to diopside (BRAUNS), A., ii, 36. from Massachusetts (MARTIN), A., ii, 112.
- Opal**, action of water on (SPEZIA), A., ii, 300.
- Opal sinter** from the Seychelles (BAUER), A., ii, 565.
- Opalisin**, presence of, in milk (WRÓBLEWSKI), A., ii, 232.
- Opium**, assay of, by iodine (PRESCOTT), A., i, 90. estimation of morphine in (THOMS), A., ii, 194; (MONTMARTINI and TRACIATTI), A., ii, 619; (GORDIN and PRESCOTT), A., ii, 714.
- Oponal** (TSCHIRCH and KNITL), A., i, 714.
- Opopanax**, constituents of (TSCHIRCH and KNITL), A., i, 713.
- Oporesinotannol**, and benzoyl derivative (TSCHIRCH and KNITL), A., i, 714.
- Optical isomerides**, mixtures of, melting point curves of (CENTNERSZWER), A., ii, 725.
- Optical isomerism** (WALDEN), A., ii, 393.
- Optically active substances**, crystallographic relations of (FOCK), A., i, 819. racemisation of (MCKENZIE), T., 769.
- Optical activity**, influence of an unsaturated linking on (FORSTER), T., 1149; P., 1899, 194. of amyl radicle, influence of elements on (WALDEN), A., ii, 537.
- Optical antipodes**, interconversion of (WALDEN), A., ii, 538.
- Optically transparent liquids** (SPRING), A., ii, 537.
- Orange peel**, presence of a sugar in (FLATAU and LABBE), A., ii, 445.
- Orcinol** (3:5-dihydroxytoluene), action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200. amino-, tribenzoyl derivatives of (HEINRICH), A., i, 171.
- o- and p-Orcinoldicarboxylic acids**, and mono- and diethylic salts (JERDAN), T., 814, 818; P., 1899, 152.
- Orcinoltricarboxylic acid**, ethylic salt, preparation and constitution of, and di- and mono-ethylic salts (JERDAN), T., 810, 814; P., 1899, 151.

- Oreoselone**, bromo-, nitroso-, acetyl, and phenylhydrazine derivatives (SCHMIDT, JASSOY, and HAENSEL), A., i, 378.
 methylic ether. See Peucedanin.
- Ores**, Austrian (JOHN and EICHLEITER), A., ii, 493.
 from British Columbia (GWILLIM and JOHNSON), A., ii, 498.
 Canadian (HOFFMANN), A., ii, 110.
 estimation of arsenic in (BENNETT), A., ii, 519.
- Orexine**. See 3'-Phenyldihydroquinazoline.
- Organic analysis**. See Analysis.
- Organic compounds**, spectra produced by electric discharges in (WIEDEMANN and SCHMIDT), A., ii, 5.
 luminescence of vapours of (KAUFFMANN), A., ii, 464.
- Organic liquids**, optical transparency of (SPRING), A., ii, 357.
- Organic matter** in air, oxidation of (LÉVY and HENRIET), A., ii, 94.
- Organic products**, separation of, apparatus for (CHABRIÉ), A., ii, 362.
- Organo metallic compounds**.
 See:—
 Antimonylcatechol.
 Antimonylgallic acid hydroxide.
 Antimonylpyrogallol hydroxide.
 Copper acetylide.
 Hydroxyphenylmercuric salts.
 Mercurio-acetonaphthalide.
 Mercuriodiphenylamine.
p-Mercuriodiphenylenediphenyldimethylmercuriodiammonium hydroxide.
 Mercuriodiphenylenediphenylmercuriodiammonium hydroxide.
 Mercuriomethacetin.
 Mercurocarbide nitrate.
 Mercury acetylide.
 Mercurydimethyl.
 Mercurydiphenetyl.
 Mercurydiphenyl.
 Pallado-oxalic acid.
 Phenylenedimercuric salts.
 Phenylstibic acid.
 Phenylstibine.
 Platoso-oxalonitrous acid.
 Thiophenmercuric compounds.
 Tolylstibine.
 Triphenylstibine.
 Tripropylarsine oxide.
 Zincdiethyl.
 Zincdimethyl.
 Zincdiphenyl.
- Origanum majorana*, oil of (BILTZ), A., i, 535.
- Ornithine**, from hydrolysis of arginine, and its constitution; also action of nitrous acid and of phenanthraquinone on (SCHULZE and WINTERSTEIN), A., i, 107.
 formation of putrescine from (ELLINGER), A., i, 186.
- Ornithuric acid**. See Dibenzoylornithine.
- Orthoclase** from Baveno (LOEWINSONLESSING), A., ii, 767.
 from British Columbia (GWILLIM and JOHNSON), A., ii, 498.
 from Ceylon (DIERSCHÉ), A., ii, 500.
 alteration of, to microcline (JERMÉE), A., ii, 673.
- Oscine** (*scopoline*), chemistry of (PINNER), A., i, 178.
- Osmium**, fusibility of (MYLIUS and DIETZ), A., ii, 160.
 volatilisation of, in a current of air or oxygen (VÉZES), A., ii, 492.
- Osmium**, double chlorides and bromides with sodium, potassium, ammonium or silver (ROSENHEIM and SASERATH), A., ii, 665.
 tetroxide, volatilisation of (ŠULC), A., ii, 299.
 estimation of volumetrically (KLOBIE), A., ii, 184.
- Osmiamates** of potassium, ammonium and silver (BRIZARD), A., ii, 559.
- per-Osmic acid* (MYLIUS and DIETZ), A., ii, 160.
- Osmotic pressure**. See Diffusion.
- Osyritrin**, action of potassium acetate on (PERKIN), T., 440; P., 1899, 65.
- Onabain**, hydrolysis of, action of nitric acid on, *mono*- and *di*-nitro-derivatives and salts (ARNAUD), A., ii, 70.
- Ovalbuminic acid** and its salts (ALBARY), A., i, 95.
- Ovimucoid** (ZANETTI), A., i, 180.
 amount of glucosamine from (SEEMAN), A., i, 465.
- Oxalacetic acid**, ethylic salt, action of potassium cyanide on, in presence of hydrochloric acid (DURAND), A., i, 741.
 condensation of, with ethylic phenylpropiolate (RUHEMANN and CUNNINGTON), T., 733; P., 1899, 169.
- Oxalatoplatinum compounds** (WERNER and GREBE), A., i, 865.
- Oxalic acid**, electrolysis of (BOSE), A., ii, 349.
 contraction of aqueous solutions of, on dilution (WADE), T., 270; P., 1899, 8.
 stability of solutions of (JORISSEN), A., i, 739.

Oxalic acid, catalytic action of palladium, platinum, and silver on solutions of (ŠULC), A., i, 569.
 action of, on fluorides of magnesium, cerite earths, yttria, thoria, &c., and on silicofluorides of cerium, lanthanum, yttrium, &c. (PATERNO and ALVISI), A., ii, 17, 18.
 detection of tartaric acid in presence of (FRESENIUS), A., ii, 257.
 estimation of (ULSCH), A., ii, 802.
 estimation of, in presence of citric and malic acids (KISSLING), A., ii, 821.
 estimation of, in urine (SALKOWSKI), A., ii, 705.
Oxalic acid, double ammonium salts with aluminium, chromium, and iron, action of metallic chlorides on (ROSENHEIM and PLATSCH), A., i, 739.
 antimony salts, and double salts of antimony with potassium, sodium, and ammonium (ROSENHEIM and BIERBRAUER), A., i, 570.
 bismuth salt, and double salts of bismuth with potassium and ammonium (ROSENHEIM and BIERBRAUER), A., i, 571.
 cadmium salt, boiling point of solution of, in presence of hydrochloric acid (RICHARDS and HARRINGTON), A., ii, 140.
 cupric, manganous and mercuric salts (PATERNO and ALVISI), A., ii, 17.
 double molybdenum salts with sodium and barium, and its vanadium barium salt (ROSENHEIM and ITZIG), A., i, 740.
 double salt of platinum and potassium (VÉZES), A., i, 572.
 potassium salt, heat of formation of (MASSOL), A., ii, 80.
 praseodymium salt (SCHEELÉ), A., ii, 100.
 double salts of tin with potassium and barium (ROSENHEIM and PLATSCH), A., i, 572.
 uranous salt of (ALOY), A., ii, 599.
 double uranum salts with potassium, sodium, ammonium, caesium, lithium, and barium (ROSENHEIM and LIENAU), A., i, 569.
 vanadium, ammonium, and potassium double salts (PICCINI and BRIZZI), A., ii, 298.
l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
 mono-ethyllic salt, phenylhydrazide of, formation of (BOUVEAULT), A., i, 416.
 ethylic salt, specific heat and heat of vaporisation of (LUGININ), A., ii, 269.

Oxalic acid, ethylic salt, velocity of hydrolysis of, in aqueous alcoholic solution (KISTIÁKOWSKY), A., ii, 13.
 condensation of with ethylic β -methylglutarate, ethylic β -phenylglutarate, and ethylic $\beta\beta$ -dimethylglutarate (DIECKMANN), A., i, 676.
Oxalic acid, diamino-. See Glycollic acid. diamino-.
 dichloro-, methylic salt. See Methoxydichloroacetic acid, methylic salt. imino-. See Glycollic acid, imino-.
Oxalochlorides, estimation of oxalic acid in, by means of cerium (JOB), A., ii, 334.
Oxalylamidoguanidine (THIELE and MANCHOT), A., i, 167.
Oxalylphenylamidoguanidine, pierate of (CUNEO), A., i, 550.
Oxamic acid, elimination of, from the organism (SCHWARZ), A., ii, 164.
Oxamide, mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
6-Oxamidophenyl-naphthaphenazonium anhydride (KEHRMANN and LOCHER), A., i, 82.
Oxanilylthiocarbimide (DIXON), T., 409; P., 1899, 65.
iso-**Oxazole**, β -nitro- (HILL and TORREY), A., i, 789.
Oxazolone, chloro- (HANRIOT and REYNAUD), A., i, 723.
Oxazolones, preparation of (JAPP and FINDLAY), T., 1027; P., 1899, 165.
Oxidation, animal, relation of iron-nucleins, bionucleins, and enzymes (SACHAROFF), A., ii, 787.
Oxides, crystalline double (DUFAY), A., ii, 225.
Oxidising ferments. See Oxydase.
Oximes, constitution of (POPE), T., 1109.
 formed from a decomposition product of dimethylindazone oxime (BAMBERGER and WEELE), A., i, 124.
 behaviour of, towards diazo-compounds (BAMBERGER), A., i, 589.
 stereoisomeric, stability of, in presence of acids and alkalis (ABEGG), A., i, 327.
Oximes. See also:—
 Acetaldoximedisulphonic acid.
 Acetoxime.
 Acetylcamphoroxime.
 Acetyl dimethylheptoxic oxime.
 Acetyl *iso*heptyldioxime.
 β -Acetyl *iso*heptylphenylhydrazoxime.
 Acetyl *iso*hexyldioxime.
 β -Acetyl *iso*hexylphenylhydrazoxime.
 Acetyl methylheptenoneoxime.
 Acetyl palmityldioxime.

Oximes. See :—

Acetylpyridylacetonyloxime.
 Acetylquinoneoxime.
 Acetylstearyldioxime.
 Acid, $C_{10}H_{18}O_3$, oxime of.
 Aldoximephenoxycetic acid.
 Anilinobenzylacetoacetic acid oxime.
 Benzenylanilidoxime.
 Benzenylazoxime.
 Benzenylpiperidoxime.
 Benzenyltoluidoxime.
 Benzhydroximic acid.
 Benzildioximes.
 Benzoylacetoneoxime.
 Benzoylfurfuranoxime.
 Benzyl α -ethyl benzyl ketoxime.
 Benzylmethylketoxime-*o*-carboxylic acid.
 Benzylxybenzaldoxime.
 Benzylphenylacetoxime.
 Benzylsalicylaldoxime.
iso-Butylideneacetoxime.
iso-Campheniloneoxime.
 Camphoroxime.
 Carbonic acid, imino-, dioxime of.
 Carvylldioxime.
 Dibenzenylazoxime.
 Dibenzoyldiphenylbutadienedioxime.
 Dibenzoyldiphenylbutenedioxime.
 Dibenzoylpropanedioxime.
 Dibenzyl ketoxime.
 Dicumphenylic acid oxime.
 Diethoxydiphenyltetrahydropyrone-oxime.
 Diethylindolenineformamidoxime.
 Diethylindolenineformoxime.
 β -Digitogenic acid, oxime of.
 Digitoseoxime.
 Dihydroxydipyridyldiquinonedioxime.
 Diketophenoheptamethylenedioxime.
 Dimethoxydiphenyltetrahydropyrone-oxime.
 Dimethylallylmalonic acid, ethylic salt, oxime of.
 Dimethylbenzaldoxime.
 Dimethylcyclohexanoneoxime.
 Dimethylindazoneoxime.
 Dimethylindolenineformoxime.
aa-Dimethylketohexamethyleneoxime.
 Dimethylsalicylaldoxime.
 Dipentamethenylpinacolinoxime.
 Diphenylacetylacrylic oxime.
 Diphenylbuteneoneoxime.
 Diphenylcarbamidoxime.
 Diphenyltetrahydropyroneoxime.
 Diphthalididimethylketoxime.
 Ethaneprotocatechuic aldoxime.
 Ethyl butyl diketoxime.
 Ethyl heptadecyl ketoxime.
 Ethyl propyl diketoxime.
 Furfurylmethylcyclohexenoneoxime.
cyclo-Hexanoneoxime.

Oximes. See :—

o-Hydroxyacetophenoneoxime.
m-Hydroxybenzaldoxime.
 Hydroxycaroneoxime.
 γ -Hydroxydimethylacetacetic acid, oximido-lactone of.
 Hydroxymethylbenzophenoneoxime.
 Hydroxyphenoxyacetoxime.
 Ketoterpinoxime.
 Ketotetrahydronaphthaleneoxime.
 Malonic aldehyde aniloxime.
 Malonic dialdoxime.
 Mesityloximes.
 Methoximidoazaloneoxime.
 Methoxyphenylcyclohexenoneoxime.
 Methoxyphenylmethylcyclohexenone-oxime.
 Methyl amyl diketone, phenylhydrazoxime of.
 Methyl *iso*amyl diketoxime.
 Methyl butyl diketoxime.
 Methylcinnamylideneacetoneoxime.
 Methylcinnamylideneacetophenone-oxime.
 Methyl ethyl glyoxime.
 Methylglyoximecarboxylic acid.
 Methylgranatoneoxime.
 Methylindoleoxime.
 Methyl nonyl ketoxime.
 Methylcyclopentanoneoxime.
 Methylisopropylcyclohexanoneoxime.
 Methylpropylketoxime.
 Methyltriphenylcyclohexenoneoxime.
 Oximidomethylisoxazoloneoxime.
 Phenylbenzaldehydeoxime.
 Phenyl dimethylketopyrrolidineoxime.
 Phenylindole, *isonitroso*-.
 Phenylmethylcyclohexanoneoxime.
 Phenylmethylcyclohexenoneoxime.
 Phenyl methyl ketoxime.
 Phenylloximido-oxazalone.
 Phenyl phthalidemethyl ketoxime.
 Phenylpyrazalone, *isonitroso*-.
 Phenyl-*o*-xylylketoximecarboxylic acid.
 Phoronediacetic acid, oxime of.
 Phthalididimethyl ketoximes.
 Pinacolinoxime.
 Piperidylacetoxime.
 Piperiloxime.
 Piperonylidenediacetoacetic acid, oxime of.
 Piperonylmethylcyclohexenoneoxime.
 Propionylethylbenzeneoxime.
 Propionylhydroxypropionic acid, oxime of.
iso-Propylphenylmethylcyclohexenone-oxime.
iso-Propylphenylmethylcyclohexenone-dicarboxylic acid, oxime of.
 Pulegenacetoneoxime.
 Pyridylacetonylchloride, oxime of.

Oximes. See :—

Pyridylacetophenyl bromide, oxime of.
 Pyrrolino, *isonitroso*—.

Quinonedioxime.

Quinoneoxime.

Quinoneoximesemicarbazone.

Santonin acid, oximes of.

Santonin-oxime.

Tetraketohydronaphthaleneoxime.

Toluenedioximes.

Toluquinoneoxime.

p-Toluylideneacetophenoneoxime.

Tolylacetodinitrileoxime.

Triacetonylamino-trioxime.

Triazendicarbamidine amidoxime.

Trimethylacetonylammonium chloride,
 oxime of.

Trimethylacetophenylammonium
 bromide, oxime of.

Triphenylpyridineoximes.

Vanillinoxime.

Oxindole, heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.

Oxycannabin (*nitrocannabinolactone*), and salts, oxidation and reduction products (WOOD, SPIVEY, and EASTERFIELD), T., 29—32; P., 1898, 185.

Oxycellulose (BUMCKE and WOLFFENSTEIN), A., i, 852.

colour reactions of (JANDRIER), A., i, 788.

osazones (VIGNON), A., i, 560.

Oxycellulose, nitro-, action of potash on, and its constitution (VIGNON), A., i, 242.

Oxycelluloses (FABER and TOLLENS), A., i, 854.

composition of (ZANOTTI), A., i, 851.

Oxydase, presence of, in aconite and belladonna plants (LÉPINOIS), A., i, 653.

secretion of a colour-forming, by *Bacillus coli* (ROUX), A., ii, 444.

of indigo leaves, action of various reagents on (BRÉAUDAT), A., i, 832.

from hellebore (VADAM), A., ii, 683.

of the liver (JACOBY), A., ii, 778.

α , β , and γ -**Oxydase**, and their distribution in plants (GRÜSS), A., i, 314.

Oxydases, the proteid radicle of (DE REY-PAILHADE), A., i, 180.

Oxydigitogenic acid (KILIANI and WINDAUS), A., i, 933.

Oxygen, in stellar atmospheres (GILL), A., ii, 718.

in the atmosphere and in the earth's crust (STONE), A., ii, 593.

atomic weight of (DEWAR), P., 1898, 175; (KEISER), A., ii, 88; (LEDUC), A., ii, 475.

Oxygen, the standard for atomic weights (LANDOLT, OSTWALD, and SEUBERT), A., ii, 86.

quadrivalence of (COLLIE and TICKLE), T., 710; P., 1899, 148.

ionic charges produced in, by Röntgen rays (TOWNSEND), A., ii, 730.

liquid, magnetic susceptibility and permeability of (FLEMING and DEWAR), A., ii, 544.

boiling point of (LADENBURG and KRÜGEL), A., ii, 545.

diffusion of, through caoutchouc (D'ARSONVAL), A., i, 772.

liquid, density of, and of mixtures of, with nitrogen (LADENBURG and KRÜGEL), A., ii, 208, 467.

compressibility of mixtures of, with hydrogen (BERTHELOT and SACERDOTE), A., ii, 404.

compressed, solution of bromine and iodine in (VILLARD), A., ii, 143.

æolopile (GAWALOWSKI), A., ii, 362.

rendering active ("Activirung") of (ENGLER and WEISSBERG), A., i, 221.

combination of, with hydrogen, heat evolved in (PLATNER), A., ii, 628.

non-explosive combination of, with hydrogen (BODENSTEIN), A., ii, 733.

combination of, with hydrogen or carbon monoxide, at different temperatures (HÉLIER), A., ii, 85.

inflammability of mixtures of, with methane or carbon monoxide (EMICH), A., ii, 13.

combination of, with nitrogen, under influence of electric discharge (BERTHELOT), A., ii, 648.

at high pressure, pathological action of, on the lungs (LORRAIN SMITH), A., ii, 316.

lack of, physiological effects of (ZOETHOUT), A., ii, 235.

action of, on seeds and seedlings (SANDSTEN), A., ii, 320.

influence of, on yeast fermentation (BUCHNER and RAPP), A., ii, 169.

estimation of, in copper (LUCAS), A., ii, 52.

estimation of, in gaseous mixtures, by titration (CHLOPIN), A., ii, 574.

estimation of, dissolved in water (FLORENCE), A., ii, 179; (MACKAY and MIDDLETON), A., ii, 244; (LÉVY and MARBOUTIN), A., ii, 381; (GERLAND), A., ii, 697.

"**Oxyheptic acid**." See *iso*-Propylmesaconic acid.

2-Oxy-7-methylpurine (FISCHER), A., i, 175.

Oxypecedananin (SCHMIDT, JASSOY, and HAENSEL), A., i, 378.

1-Oxy-1-propylpiperidinesulphonic anhydride (AUERBACH and WOLFFENSTEIN), A., i, 936.

Oxyprotosulphonic acid, oxidation products of (BERNERT), A., i, 315.

Oxyptomaine (*collidone*), and salts (OECHSNER DE CONINCK), A., i, 830.

6-Oxypurine, 6-chloro-2-amino-, and 6-iodo-2-amino- (FISCHER), A., i, 176.

Oxyroccellic acid from *Pulveraria farinosa*, and its barium salt (HESSE), A., i, 386.

per-Oxyprotoic acid, resolution of, into two substances (BERNERT), A., i, 316.

Ozone, preparation of (OTTO), A., ii, 282.

density and molecular weight of (LADENBURG), A., ii, 89, 281; (STÄDEL; GRÖGER), A., ii, 150.

concentration of, and its density and boiling point (LADENBURG), A., ii, 18.

sterilisation of drinking water by (MARMIER and ABRAHAM), A., ii, 506.

distinction between nitrous acid, hydrogen peroxide and (ERLWEIN and WEYL), A., ii, 179.

P

Palaëopierite from Nassau (BRAUNS), A., ii, 36.

Palaëotrochis, origin of (DILLER), A., ii, 499.

Palagonite from Franz Josef Land (TEALL), A., ii, 162.

Palladium, commercial, purity of (MYLIUS and DIETZ), A., ii, 160.

absorption of gases by, at low temperatures (HEMPINNE), A., ii, 146.

sponge, occlusion of gases by (HEMPINNE), A., ii, 228.

action of, on sulphuric acid (ADIE) P., 1899, 133.

reductions in the presence of (ZELINSKY), A., i, 181.

reduction of cupric hypophosphite and of bismuth or antimony salts by (ENGEL), A., ii, 750.

Palladium ammonium chloride, electrolysis of (COWPER-COLES) A., ii, 765.

dissociation of, change of entropy in (MATIGNON), A., ii, 273.

Palladium organic compounds :—

Palladi- and Pallado-dipyridine chlorides (ROSENHEIM and MAASS), A., i, 163.

Pallado-oxalic acid, potassium salt (VÉZES), A., i, 672.

VOL. LXXVI. ii.

Palladium, estimation and separation of :—

estimation of gold in presence of (KOLLOCK), A., ii, 811.

separation of tellurium from (JANASCH and MÜLLER), A., ii, 60.

Palmitamide, action of bromine on, in presence of sodium ethoxide (JEFFREYS), A., i, 731.

Palmitic acid in ancient cements (DÖRNER), A., ii, 554.

physical constants of (SCHEIJ), A., i, 668.

boiling point of, in a vacuum (KRAFFT), A., ii, 464.

and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471.

solidifying points of mixtures of, with stearic acid (VISSER), A., i, 255.

action of acetic anhydride on; also anhydride (ALBITZKY), A., i, 862.

estimation of (TWITCHELL), A., ii, 69.

separation of, from other fatty acids (HOLZMANN), A., ii, 68.

Palmitic acid, sodium salt, influence of, on the boiling point of water or alcohol (KRAFFT), A., ii, 470.

amylic salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.

methylamine salt, colloidal nature of (KRAFFT), A., ii, 473.

Pancreas, action of, on alcoholic fermentation (LÉPINE and MARTZ), A., ii, 442.

causes of diabetes following extirpation of (TUCKETT), A., ii, 676.

Pancreatic juice, action of, on albumin (HARLAY), A., i, 835.

influence of acids and alkalis on the diastatic action of (RACHFORD), A., ii, 567.

Papain, separation of iron-nuclein from (SACHAROFF), A., ii, 786.

Papaverine, heat of combustion and formation of, and of combination with hydrochloric acid (LEROY), A., ii, 631.

viscosity of undercooled (TAMMANN), A., ii, 272.

action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.

Paper, estimation of woody fibre in (PIUTTI), A., ii, 340.

Parabanic acid (*oxalylcarbamide*), mercury compound of, constitution of (KIESERITZKY), A., ii, 395.

Paraconic acid, formation of, from the reduction of aconic acid (REITTER), A., i, 115.

- Paraffin**, volatilisation of, in compressed gases (VILLARD), A., ii, 143.
as an adulterant of oleomargarine (GEISLER), A., ii, 710.
- Paraffins**, direct nitration of (WORSTALL), A., i, 399.
sulphonation of (WORSTALL), A., i, 18.
higher, interval between melting points and boiling points of, under diminished pressure (KRAFFT), A., ii, 465.
normal, purification of, by means of chlorosulphonic acid (YOUNG), T., 172; P., 1899, 22.
- Paralaurionite** from Chili (ARZRUNI, THADDEEFF, and DANNENBERG), A., ii, 563.
from Laurion, Greece (SMITH and PRIOR), A., ii, 432.
- Paramide**, preparation of (MATHEWS), A., i, 58.
- Paramæcium**, motor reactions and chemotaxis in (JENNINGS), A., ii, 440.
- Parapyruvic acid**, and its salts (WOLFF), A., i, 483.
- Parrellic acid**, presence of, in various lichens; properties and salts (HESSE), A., i, 383, 384.
- Parrellinic acid** (HESSE), A., i, 384.
- Parisite** from Montana and Colombia (PENFIELD and WARREN), A., ii, 600.
- Parmelia** *caperata* and *P. fuliginosa*, *P. perlata* and *P. tiliacca*, constituents of, (HESSE), A., i, 382, 386.
- Parmelia glomellifera**, presence of glomelliferin in (ZOFF), A., i, 716.
- Parmelia omphalodes**, atranoric acid and stereocaulic acid from (ZOFF), A., i, 717.
- Parmelialic acid**, identity of, with lecanoric acid (HESSE), A., i, 382; (ZOFF), A., i, 716.
- Partition**. See Affinity chemical.
- Patrinite**. See Aikinite.
- Peas**. See Agricultural chemistry.
- Peat**, from N. Carolina, vanadium, chromium and titanium in (BASKERVILLE), A., ii, 666.
from Holland, chalybite and vivianite in (BEMMELEN), A., ii, 371.
from Mecklenburg, vivianite and chalybite in (GAERTNER), A., ii, 302.
- Pectin** from gentian root, hydrolysis of, to arabinose and action of diastase on (BOURQUELOT and HÉRISSEY), A., i, 93.
from quince (JAVILLIER), A., i, 822.
of fruit of wild rose (BOURQUELOT and HÉRISSEY), A., i, 652, 967.
- Pectins** (BOURQUELOT), A., i, 652.
- Pectinase**, presence of, in germinated barley and action on pectins (BOURQUELOT), A., i, 652; (BOURQUELOT and HÉRISSEY), A., i, 653.
- Pectose** from gentian root, hydrolysis of (BOURQUELOT and HÉRISSEY), A., i, 93.
- Pelitisation** of felspars (LOEWINSON-LESSING), A., ii, 767.
- Pelletierine**, estimation of, in pomegranate bark (EWERS), A., ii, 548.
- Pelosine**, identity of, with bebeerine (SCHOLTZ), A., i, 651.
- Penicillium glaucum*, composition of (MARSHALL), A., ii, 44.
absence of pentosans in (MENOZZI), A., ii, 683.
occurrence of mannin in (ZANOTTI), A., i, 851.
action of copper and ammonium sulphates on (MAILLARD), A., ii, 570.
action of, on dextrin (PETIT), A., i, 559.
action of, on glucosides (PURIEWITSCH), A., ii, 683.
- Pentacetyl-dextrose** (RYAN), P., 1899, 196; (SKRAUP and HAMBURGER), A., i, 852.
- Pentadecylamine**, and the action of carbon disulphide, phosgene, and sodium nitrite on (JEFFREYS), A., i, 730.
- Pentadecyl-carbamic acid**, -dithiocarbamic acid, -carbimide, -thiocarbimide, and -phenylcarbamide (JEFFREYS), A., i, 730, 731.
- Pentadecylic alcohol** and phenylcarbamate (JEFFREYS), A., i, 731.
- Pentaglycol bromide** (GUSTAVSON and POPPER), A., i, 263.
- Pentahydroxybenzophenone**. See Mac-lurin.
- Pentamethenylic ethylic ether** (MEISER), A., i, 742.
- Pentamethyldihydroquinoline**, and salts (PICCININI), A., i, 76.
- Pentamethyldiphenylmethane** (WEILER), A., i, 703.
- Pentamethylene** 1:4-disulphide, and 1:4-disulphone (AUTENRIETH and WOLFF), A., i, 581.
- Pentamethylene**. See also *cyclo*-Pentane.
- Pentamethylene-2-methylpyrrolidinium bromide**. See *cyclo*-Pentane-2-methylpyrrolidinium bromide.
- Pentamethylphloroglucinol**, preparation of, and monomethylic ether (REISCH), A., i, 803, 804.
- n*-**Pentane**, from the decomposition of hexane by aluminium chloride (FRIEDEL and GORGEV), A., i, 181.
thermal properties of (ROSE-INNES and YOUNG), A., ii, 587.

- n*-Pentane, viscosity coefficient of (GUYE and FRIDERICH), A., ii, 358.
- n*-Pentane, α - and β -2:4-diamino-, action of sodium acetate on; also their ethenyl derivatives and salts (HARRIES and HAGA), A., i, 562.
- $\alpha\delta$ -dibromo-, condensation of, with aniline, *o*-toluidine, *p*-toluidine, *m*-nitriline, and piperidine (SCHOLTZ and FRIEMEHLT), A., i, 541.
- tetrabromo-, from action of bromine on isoprene dibromide (MOKIEW-SKY), A., i, 727.
- 3-bromo-2-amino-, from action of hydrobromic acid on aminodiethylcarbinol; also its hydrobromide and picrate (JÄNECKE), A., i, 477.
- isonitro-, and its sodium salt (HANTZSCH and VEIT), A., i, 402.
- dinitro-, from the action of nitric acid on ethyl amyl ketone (FILET and PONZIO), A., i, 111.
- iso*-Pentane (2-methylbutane, isopropyl-ethane, trimethylethane), thermal properties, and density of (YOUNG), A., ii, 633.
- specific volume of (LEDUC), A., ii, 729.
- iso*-Pentane, $\beta\gamma$ -dibromo-, action of zinc dust on (IPATIEFF), A., i, 470.
- $\gamma\delta$ -dibromo-, and the action of zinc dust on it (IPATIEFF), A., i, 470.
- di*- and *tri*-chloro-, from action of chlorine on *tert*-amyl alcohol (BROCHET), A., i, 100.
- Pentane (tetramethylmethane) from Caucasian naphtha (MARKOWNIKOFF), A., i, 554.
- cyclo*-Pentane (pentamethylene), action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 553.
- Pentanedicarboxylic acids. See :—
Butylmalonic acid.
Dimethylglutaric acids.
n-Pimelic acid.
Propylsuccinic acid.
Trimethylsuccinic acid.
- cyclo*-Pentanediol, and diacetyl derivative and diphenylurethane (MEISER), A., i, 742.
- cyclo*-Pentane-2-methylpyrrolidinium bromide (SCHOLTZ and FRIEMEHLT), A., i, 541.
- Pentanetetracarboxylic acid. See $\beta\beta$ -Dimethylpropanetetracarboxylic acid.
- Pentanetricarboxylic acid. See $\beta\beta$ -Dimethylpropanetricarboxylic acid.
- cyclo*-Pentanol, and its chloro-derivatives, and their phenylurethanes (MEISER), A., i, 741, 742.
- Pentaphenylbiguanide (SCHALL), A., i, 280.
- Pentene. See Amylene.
- cyclo*-Pentenic oxide (MEISER), A., i, 742.
- Pentenoic acid (*allylacetic acid*), and its chloride, amide, and nitrile (HENRY and ASCHMANN), A., i, 257.
- Pentenoic acid (β -dimethylacrylic acid), and its oxidation; also its ethylic salt (CROSSLEY and LE SUEUR), T., 164; P., 1898, 219.
- nitrile of (HENRY), A., i, 257.
- ethylic salt (BISCHOFF and BERNHARD), A., i, 202.
- condensation of, with the sodium derivative of ethylic cyanacetate (PERKIN and THORPE), T., 52.
- Pentenoic acid (α -ethylacrylic acid), and its salts, and oxidation (SEMENOFF), A., ii, 866.
- Pentenoic acid (β -ethylacrylic acid), and its oxidation; also its ethylic salt (CROSSLEY and LE SUEUR), T., 166; P., 1898, 219.
- Pentenoic acid (*tiglic acid*, *methylcrotonic acid*), from condensation of acetaldehyde with propionic acid (KIETREIBER), A., 331.
- Pentinene (*isoprene*), action of hypochlorous acid and bromine on; also its dibromide and dibromhydrin (MOKIEWSKY), A., i, 726.
- Pentonic acid, from acid hydrolysis of maltodextrinic acids, and its calcium salt (BROWN and MILLAR), T., 298; P., 1899, 12.
- Pentosans, rôle of, in the manufacture of crude sugar (KOMERS and STIFT), A., i, 185.
- estimation of (WARNIER), A., ii, 339.
- estimation of, and use of, in food analysis (HEHNER and SKERTCHLY), A., ii, 702.
- estimation of, in presence of sucrose (ANDRLIK), A., ii, 818.
- Pentose, origin of, in the living body, and tests for, in urine (SALKOWSKI), A., ii, 679.
- Pentoses, estimation of methylated (VOTCEK), A., ii, 701.
- Pentyl-. See Amyl-.
- Pentylenedicarboxylic acids :—
Dimethylaticonic acid.
Dimethylcitraconic acid.
Dimethylglutaconic acid.
Dimethylitaconic acid.
Dimethylmesaconic acid.
Ethyleitraconic acid.
Ethylitaconic acid.
Ethylmesaconic acid.
Teraconic acid.
- Peppermint, French essence of, properties of (CHARABOT), A., i, 441.

- Pepsin**, action of heat on (HARLAY), A., i, 967.
 action of, on albumin (HARLAY), A., i, 835.
 ultimate action of, on fibrin (HARLAY), A., i, 656.
 solvent power of; estimation of (EFFRONT), A., i, 832.
- Peptase**, presence of a, in malt (LASZCZYNSKI), A., ii, 793.
- Peptone**, physiological action of (THOMPSON), A., ii, 604, 677.
 Witte's, absorption spectrum of (BLYTH), T., 1163.
 the albumose of (SCHRÖTTER), A., i, 316.
- Peptones**, molecular weights of (VAUBEL), A., i, 839.
 presence of, in beet sugar juices (RÜMLER), A., ii, 507.
 solubility of, in alcohol (EFFRONT), A., i, 835.
 action of formaldehyde on (LEPIERRE), A., i, 654.
 physiological action of (CHITTENDEN, MENDEL, and HENDERSON), A., ii, 233.
 in pancreas, action of, on alcoholic fermentation (LÉPINE and MARTZ), A., ii, 442.
 detection of (GNEZDA), A., ii, 715.
 detection of, in urine (FREUND), A., ii, 195.
 estimation of (EFFRONT), A., ii, 716.
 separation of albumoses from (MÜLLER), A., ii, 136.
- Pericelase** from Sweden, origin of (SÖGREN), A., ii, 760.
- Peridote**, action of hydrogen sulphide on (DIDIER), A., ii, 596.
- Periodic system**, position of argon in (PICCINI), A., ii, 645.
- Peronine**. See Morphine benzylic ether.
- Peroxides**, constitution of (MELIKOFF and PISSARJEWSKY), A., ii, 31.
- Perseitol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Pertusarene**, **Pertusaric acid**, **Pertusarin**, and **Pertusaridin** from *Pertusaria communis* (HESSE), A., i, 383.
- Peruvial**, and its cinnamoyl derivative and bromination (THOMS), A., i, 715.
- Petalite** from the Caucasus (JEREMÉEFF), A., ii, 108.
- Petit-grain**, oil of (CHARABOT and PILLET), A., i, 620, 711.
- Petroleum** from Hungary (JOHN and EICHLER; KALECSINSZKY), A., ii, 493.
 Italian (CECCHI-MENGARINI), A., i, 841.
- Petroleum**, diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
 light, and water, mutual solubilities of (HERZ), A., ii, 83.
 detection of, in turpentine (SCHREIBER and ZETZSCHE), A., ii, 815.
 estimation of light (RICHMOND), A., ii, 699.
 estimation of alcohol and ether in presence of light (RICHMOND), A., ii, 698.
 estimation of sulphur in (FILETI), A., ii, 575.
- Peucedanin** (*imperatorin*), viscosity of undercooled (TAMMANN), A., ii, 272.
 velocity of crystallisation of (BOGOWLENSKY), A., ii, 206.
 and action of bromine on (SCHMIDT, JASSOY, and HAENSEL), A., i, 377.
- Phacolite**, vapour pressure of (TAMMANN), A., ii, 8.
- Phaseolus multiflorus*. See Agricultural chemistry.
- Phenacetin**, *o*-bromo- (VAUBEL), A., i, 700.
ω-bromo- (HINSBERG), A., i, 496.
ω-Phenacetin, *o*-chloro- (REVERDIN and DÜRING), A., i, 267.
- Phenacetolin** as an indicator (WADDELL), A., ii, 83.
- Phenacylbromocinnamic acid** (THIELE and MAYR), A., i, 610.
- Phenacylcinnamic acid** (THIELE), A., i, 217, 609.
- Phenacylcyanacetic acid** (*α*-cyano-β-benzoylpropionic acid), alkylic salts, and the action of potash on them (KLOBB), A., i, 114.
- Phenacylhydrocinnamic acid** (THIELE), A., i, 217; (THIELE and MAYR), A., i, 611.
- Phenacylic iodide**. See Acetophenone, *ω*-iodo-.
- Phenacyllævulic acid**. See Phenyl-4:7-diketohexanecarboxylic acid.
- Phenacylmethylcinnamic acid** and salts (THIELE), A., i, 610.
- 9-Phenacylphenanthrone**, 9-amino-, (JAPP and MELDRUM), T., 1034; P., 1899, 166.
- Phenakite** from Bohemia (PREIS), A., ii, 668.
- Phenanthraquinone**, interaction of, with acetophenone in presence of ammonia (JAPP and MELDRUM), T., 1032; P., 1899, 166.
- Phenanthraquinone-*p*-nitrophenylhydrazone** (HYDE), A., i, 689.
- Phenanthrene**, equilibrium between benzene, carbazole and (BRUNI), A., ii, 406.

- α -Phenanthroline** (BLAU), A., i, 388.
- Phenanthrazine**, amino- (THIELE and BIHAN), A., i, 47.
- Phenegol**, *o*-nitrophenol-*p*-sulphonate of mercury and potassium (GAUTRELET), i, 802.
- i*- α -Phenethylamine** hydrochloride and platinochloride; rotatory power of (POPE and HARVEY), T., 1110; P., 1899, 200.
- Phenethylsuccinic acid**, and anhydride (THIELE and MEISENHEIMER), A., i, 603.
- Phenetidine**, *o*-amino-, diacetyl derivative of (COHEN), A., ii, 944.
- o*-amino-, physiological action of (COHN), A., ii, 781.
- Phenetol**, synthesis of (MOUREU), A., i, 495.
- 2:6-*di*bromo-, action of sulphonating agents on (ARMSTRONG), P., 1899, 178.
- o*-bromo-*p*-amino-, and picrate; *p*-bromo-*o*-amino-, picrate and acetyl derivative; 2:4-bromonitro-, *tribromo*-; *p*-chloro-*o*-amino-salts, and acetyl derivative; *o*-chloro-*p*-amino-, picrate and acetyl derivative; *p*-chloro-*m*-amino-, picrate and acetyl derivative; 2:5-chloronitro-; *di*chloro-*p*-amino-, its salts and acetyl derivative; *p*-nitro-*o*-amino-, and *m*-nitro-*o*-amino-, and acetyl derivatives (REVERDIN and DÜRING), A., i, 266, 267.
- o*- and *p*-Phenetoilsulphinic acids (GATTERMANN), A., i, 517.
- o*-Phenetoilsulphonic acid, potassium salt, chloride, amide, and anilide (GATTERMANN), A., i, 518.
- phenylhydrazide (GATTERMANN), A., i, 518.
- o*- and *p*-nitro-, action of bromine on (ARMSTRONG), P., 1899, 177.
- o*-Phenetylmercuric iodide, chloride, and acetate (DIMROTH), A., i, 429.
- 3-Phenethylpyridazine**, 6-chloro-3-bromo- (GABRIEL and COLMAN), A., i, 391.
- v*-Phenethylpyridazinone, and monobromide (GABRIEL and COLMAN), A., i, 391.
- p*-Phenethylthiocarbimide (BAMBERGER), A., i, 696.
- Phenoketoheptamethylene** (*phenocycloheptane*, *phenocycloheptanone*), and its semicarbazone (KIPPING and HALL), P., 1899, 174.
- Phenol**, synthesis of, from acetylene (BERTHELOT), A., i, 264.
- influence of pressure on melting point of (HULETT), A., ii, 469.
- Phenol**, equilibrium between, and hydrocyanic acid in combination with potassium (BERTHELOT), A., ii, 737.
- equilibrium between water, aniline, and (SCHREINEMAKERS), A., ii, 739.
- absorption of argon by (BERTHELOT), A., ii, 653.
- condensation of, with benzoin (JAPP and MELDRUM), T., 1037; P., 1899, 167.
- products of destructive distillation of (MÜLLER), A., i, 27.
- fate of, when introduced into the organism (MENEGAZZI), A., ii, 317.
- sodium salt of, heat of formation of (DE FORCRAND), A., ii, 589.
- detection of, by ferric chloride (PETERS), A., ii, 340.
- estimation of, in urine (NEUBERG), A., ii, 454.
- Phenol**, *o*-amino-, methylation of (PINNOW), A., i, 588.
- and *p*-amino-, *o*- and *p*-nitro-, oxidation of, with chromic acid (DE CONINCK and COMBE), A., i, 347.
- m*-amino-, preparation of (MEYER and SUNDMACHER), A., i, 755.
- pentabromo*- (BODROUX), A., i, 29.
- 4:2-bromocyano-, 4:6:2-*di*bromocyano-, and 4:2-nitrocycano- (AUWERS and WALKER), A., i, 198.
- 2:4:6-bromodinitro- (REVERDIN and DÜRING), A., i, 267.
- 2:4:6:3-*tribromo*nitro- (JACKSON and KOCH), A., i, 677.
- 6:4-chloramino- and 4:6:2-chlorodinitro- (KEHRMANN and GRAB), A., i, 129.
- o*-cyano-, ammonium and silver derivatives (AUWERS and WALKER), A., i, 198.
- o*-nitro-, electrolytic formation of (SCHALL), A., i, 364.
- influence of pressure on melting point of (HULETT), A., ii, 469.
- molecular depression of freezing point of (AMPOLA and RIMATORI), A., ii, 353.
- and *p*-nitro-, behaviour of, towards anhydrides of dibasic organic acids (SCHRYVER), T., 662; P., 121.
- p*-nitro-, from condensation of nitromalonic aldehyde with acetone (HILL and TORREY), A., i, 789.
- constitution of the salts of (HANTZSCH), A., i, 400.
- use of, in alkalimetry (GLASER), A., ii, 573.
- o*- or *m*-nitro-, sodium derivatives of, action of carbon dioxide on; compounds of, with nitrophenol (MONNET and BENDA), A., i, 585.

- Phenol**, *dinitro*-, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- Phenols**, conductivity of salt solutions in (KAHLENBERG and LINCOLN), A., ii, 397.
- cryoscopic behaviour of picrates of (BRUNT and CARPENE), A., ii, 8.
- action of hydrazine hydrate on (HOFFMANN), A., i, 221.
- action of ozone on (OTTO), A., ii, 282.
- alkylated, action of bromine on (ZINCKE), A., i, 265.
- diortho-substituted, behaviour of, towards anhydrides of dibasic organic acids (SCHRUYER), T., 662; P., 1899, 121.
- analysis of commercial (SCHRUYER), A., ii, 700.
- estimation of, in presence of soap (SPALTEHOLZ), A., ii, 64.
- Phenols**, list of. See Alcohols and Phenols.
- Phenolphthalein**, constitution of (MEYER), A., i, 707.
- phenylhydrazide, and dimethylic and diethylic ethers (GATTERMANN and GANZERT), A., i, 514.
- use of, in alkalimetry (GLASER), A., ii, 573.
- Phenolphthalein**, *dinitro*-, and *diamino*- (GATTERMANN and BAMBERG), A., i, 514.
- Phenolsaccharein** (MONNET and KETSCHET), A., i, 212.
- Phenol-*p*-sulphonic acid**, action of bromine on (ARMSTRONG), P., 1899, 177.
- Phenoltetramethyldiaminodiphenylmethane**, *p*-nitroso- (MÖHLAU and KLOPPER), A., i, 913.
- Phenolthymoquinone** (BILTRIS), A., i, 199.
- Phenoltoluquinone** (BILTRIS), A., i, 199.
- Phenomorpholine**, exhaustive methylation of (KNORR), A., i, 462.
- Phenonaphthazine**, chloro- (FISCHER and HEPP), A., i, 78.
- Phenoxyacetic acid**, phenylic and *p*-bromophenylic salts; *p*-bromo-, and phenylic salt (VANDEVELDE), A., i, 209.
- Phenoxyacetic chloride**, and *p*-bromo- (VANDEVELDE), A., i, 209.
- Phenoxyacetophenylhydrazide**, and *p*-bromo- (VANDEVELDE), A., i, 209.
- Phenoxybenzene-*p*-sulphonic acid**, action of bromine on (ARMSTRONG), P., 1899, 177.
- δ -Phenoxybutylbenzamide** (GABRIEL and MAASS), A., i, 595.
- δ -Phenoxybutylene** (SOLONINA), A., i, 681.
- δ -Phenoxybutylphthalimide** (GABRIEL and MAASS), A., i, 595.
- α -Phenoxy- δ -hexylene** (SOLONINA), A., i, 561, 681.
- β -Phenoxy- δ -hexylene** (SOLONINA), A., i, 681.
- α -Phenoxy- β -nonylene**, and **α -Phenoxy- β -octylene** (SOLONINA), A., i, 562.
- β -Phenoxy-3-pentylene** (SOLONINA), A., i, 681.
- 1- γ -Phenoxypropylpyrrolidine** (SCHLINCK), A., i, 541.
- p*-Phenoxythiobenzanilide**, and ***p*-Phenoxy-4-thiobenzanilide** (BAMBERGER), A., i, 695.
- Phenylacetaldehyde**, formation of (MORITZ and WOLFFENSTEIN), A., i, 424.
- Phenylacetamide**, formation of (MATHEWS), A., i, 57.
- Phenylacetamidocinnamic acid**, and its lactimide (ERLENMEYER and KUNLIN), A., i, 761.
- β -*o*-Phenylacetamidophenylbenzimidazole** (VON NIEMENTOWSKI), A., i, 645.
- α -Phenylacetamidophenylpropionic acid**, its salts and amide (ERLENMEYER and KUNLIN), A., i, 761.
- Phenylacetanilide**, *o*-amino- and *o*-nitro- (KÖNIG and REISSERT), A., i, 458.
- Phenylacetic acid**, ethylic salt, velocity of formation of (SUDBOROUGH and LLOYD), T., 470; P., 1899, 3.
- menthyl salt, optical activity and molecular volume of (TSCHUGAEFF), A., ii, 3.
- Phenylacetic acid**, bromo-, ethylic salt, action of benzyaniline and diphenylamine on (BISCHOFF), A., i, 125.
- trinitro*- (JACKSON and PHINNEY), A., i, 603.
- Phenylacetimidoeethyl ether** (HESSLER), A., i, 900.
- α -Phenylacetoacetic acid**, ethylic salt (BECKH), A., i, 211.
- β -Phenyl- γ -acetobutyric acid**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Phenylacetoneitrile** (*benzylic cyanide*), formation of (MATHEWS), A., i, 57.
- action of cuprous chloride on (RABAUT), A., i, 557.
- condensation of, with benzaldehyde (HENZE), A., i, 218.
- Phenyl acetyl nitrogen chloride** (*acetylphenylchloramine*), and *p*-chloro-, and 2:4-dichloro- (CHATTAWAY and ORTON), T., 1050; P., 1899, 153.
- β -Phenylacrylic acid**. See Cinnamic acid.

- Phenylalanine** (ERLENMEYER and KUNLIN), A., i, 761.
- Phenylallylcarbamide** (DAINS), A., i, 593.
- Phenylamine.** See Aniline.
- Phenylamino-.** See Anilino-.
- α -Phenyl-*m*-diaminobenzoxazole** and its diacetyl derivative (KYM), A., i, 648.
- Phenyldiaminoquinone.** See Anilino-aminoquinone.
- Phenylammonium**, lead iodide (MOSNIER), A., ii, 222.
- α -Phenylsecamylamine** (KONOWALOFF and EGOROFF), A., i, 801.
- α -Phenyl- β -amylcarbamide** (MANUELLI and COMANDUCCI), A., i, 888.
- Phenylaniline**, nitroso-, heat of combustion of (MATIGNON and DELIGNY), A., i, 127.
- Phenyl anilinomethyl ketone**, *p*-chloro-, and *p*-bromo- (COLLET), A., i, 698.
- Phenyl-*p*-anisidoacetic acid**, and its amide and nitrile (MILLER, PLÖCHL, and SCHEITZ), A., i, 128.
- Phenylatlantic acid**, and anhydride (FITTIG and BROOKE), A., i, 437.
- oxidation of (FITTIG and KÜHL), A., i, 418.
- Phenyl-azimidobenzene** and - ψ -azimidobenzene, conversion of, into ketochlorides and orthodiketones (ZINCKE and PETERMANN), A., i, 135.
- Phenylazoacetoacetic acid** and sodium and ethylic salts, phenylhydrazone and methylamide (BÜLOW), A., i, 355.
- nitro-, ethylic salt (BÜLOW), A., i, 356.
- p*-nitro-, ethylic salt, sodium derivatives, and phenylhydrazone amide (BÜLOW), A., i, 271.
- "Phenylazochromotropic acid," oxidation of (HANTOWER and TÄUBER), A., i, 63.
- Phenylazoglutaconic acid**, and monoethylic salt (HENRICH), A., i, 794.
- Phenylazonitroethane**, conversion of, into acetophenylhydrazide (BAMBERGER), A., i, 355.
- Phenylazonitropentane**, conversion of, into valerophenylhydrazide (BAMBERGER), A., i, 355.
- Phenylazonitropentane**, conversion of, into propionophenylhydrazide (BAMBERGER), A., i, 355.
- Phenylazo-.** See also Benzeneazo-.
- o*-Phenylbenzaldehyde**, and its hydrazone (ROUSSET), A., i, 292.
- and oxime and phenylhydrazone (FANTO), A., i, 367.
- 2'-Phenylbenzimidazole**, and hydrochloride (JAPP and MELDRUM), A., T., 1043; P., 1899, 169.
- o*-amino- and acetyl derivative (VON NIEMENTOWSKI), A., i, 645.
- 2-amino- and *p*-2-diamino-, and acetyl derivatives (KYM), A., i, 943.
- 3-amino-, *m*-amino-, 3-nitro-, and *m*-nitro- (PINNOW and WISKOTT), A., i, 501.
- and its *o*-, *m*-, and *p*-nitro-derivatives (WALTHER and PULAWSKI), A., i, 640, 641.
- 2'-Phenylbenzimidazoleazodimethylaniline** (PINNOW and WISKOTT), A., i, 501.
- Phenylbenzoin** and its hydrazone (BILTZ), A., i, 439.
- Phenylbenzoin-*m*-nitrobenzylidenazine** (BILTZ), A., i, 439.
- 2'-Phenylbenzoxazole**, 3-amino-, and its *p*-amino-derivative and diacetyl derivative of latter (KYM), A., i, 647, 648.
- Phenyl benzoyl nitrogen chloride** (*benzoylphenylchloramine*), and *p*-chloro- and 2:4-dichloro- (CHATTAWAY and ORTON), T., 1053; P., 1899, 153.
- 2'-Phenyl-1'-benzylbenzimidazole**, 3-nitro- (PINNOW and WISKOTT), A., i, 500.
- γ -Phenyl- β -benzylbutyrolactoneacetic acid**, β -bromo- (STOBBE, RUSSWURM, and SCHULTZ), A., i, 903.
- Phenylbenzylcarbamylthiocarbimide** (DIXON), T., 407; P., 1899, 64.
- Phenylbenzylcarbamyl-*o*-tolylguanidine** (DIXON), T., 408; P., 1899, 64.
- α -Phenylbenzylisocrotonic acid** (THIELE and MEISENHEIMER), A., i, 614.
- 3:1-Phenylbenzyl- α - and - β -crotonolactones** (THIELE and MAYR), A., i, 611.
- γ -Phenyl- β -benzylcrotonolactoneacetic acid** and salts (STOBBE, RUSSWURM, and SCHULTZ), A., i, 903.
- α -Phenylbenzyl-*e*-diphenylthiobiuret**, and its piperidine derivative (DIXON), T., 398; P., 1899, 63.
- Phenylbenzylethylallylammonium iodide**, preparation of (WEDEKIND), A., i, 352.
- e*-Phenylbenzyl- α -ethylthiobiuret** (DIXON), T., 408; P., 1899, 64.
- Phenylbenzylethylthiourea** (DIXON), T., 399.
- Phenylbenzylglutaconic acid**, diethylic salt, and monoethylic salt (RUHEMANN), T., 249; P., 1899, 6.
- Phenylbenzylglycine**, preparation of (BISCHOFF), A., i, 125.

- o*-Phenylbenzylic alcohol (FANTO), A., i, 367.
- 3:1-Phenylbenzylidene-butyrolactone and -crotonolactone (THIELE), A., i, 609, 610.
- Phenylbenzylideneglyoxalidone (RUHEMANN and CUNNINGTON), T., 959; P., 1899, 185.
- γ -Phenyl- β -benzylidene- α -ketobutyric acid, and - α -ketobutyrolactone (ERLENMEYER), A., i, 602.
- Phenylbenzylidenemethylcrotonolactone (THIELE), A., i, 610.
- 1-Phenyl-4-benzylidene-5-pyrazolone (MICHAELIS and RÖHMER), A., i, 234.
- Phenylbenzylidenepyridazone (THIELE), A., i, 609.
- γ -Phenyl- γ -benzylidenepyrotartaric acid, and salts (STOBBE and RUSSWURM), A., i, 902.
- Phenylbenzyl ketone. See Deoxybenzoin.
- α -Phenylbenzylmethylallylammonium iodides and bromides, *d*- and *l*-, rotatory powers of (POPE and PEACHEY), T., 1129; P., 1899, 192.
- α - and β -Phenylbenzylmethylallylammonium iodides (WEDEKIND), A., i, 353.
- c*-Phenylbenzyl- α -methylthiobiuret (DIXON), T., 408; P., 1899, 64.
- n*-Phenyl-*v*-benzylmethylthiourea, *v*-Phenylbenzyl-*n*-methylthiourea and *v*-Phenyl-*n*-benzyl-*v*-methylthiourea (DIXON), T., 373, 374; P., 1899, 54.
- Phenylbenzylpropylenetricarboxylic acid, ethylic salt, action of ammonia on (RUHEMANN), T., 249; P., 1899, 6.
- Phenylbenzylpyridazone (THIELE and RÖSSNER), A., i, 613.
- α -Phenylbenzyl- β -thioallophanic acid, benzylic salt of (DIXON), T., 409; P., 1899, 65.
- c*-Phenylbenzylthiobiuret (DIXON), T., 408; P., 1899, 64.
- Phenylbromobenzyl- α -crotonolactone (THIELE and MAYR), A., i, 611.
- Phenylbromobenzylidenecrotonolactone (THIELE and MAYR), A., i, 610.
- Phenylbromocinnamylacrylic acid (THIELE and RÖSSNER), A., i, 613.
- Phenyl*di*bromopropiono-diethylamide and -piperidide (HERMANN and VORLÄNDER), A., i, 813.
- Phenyl*tri*bromomethylcarbinol, and its acetate (SIEGFRIED), A., i, 747.
- Phenyl bromomethyl ketone, *p*-bromo-, and *p*-chloro-, and *di*bromomethyl ketone, *p*-bromo- and *p*-chloro- (COLLET), A., i, 699.
- Phenyl*di*bromopyridazone (BISTRZYCKI and SIMONIS), A., i, 392.
- α -Phenylbutane- $\alpha\gamma\delta$ -tricarboxylic acid (?), its methylic salt and anhydride (THIELE and MEISENHEIMER), A., i, 604.
- β -Phenylbutane- $\alpha\gamma\delta$ -tricarboxylic acid, δ -cyano-, ethylic salt, and its hydrolysis (THORPE and UDALL), T., 906; P., 1899, 184.
- cis*- and *trans*- β -Phenylbutane- $\alpha\gamma\delta$ -tricarboxylic acids, and their anhydride (THORPE and UDALL), T., 904; P., 1899, 184.
- γ -Phenylbutyric acid, behaviour of the chloride of, towards aluminium chloride (KIPPING and HILL), T., 146; P., 1899, 4.
- β -Phenylbutyrolactoneacetic acid, β -bromo- (STOBBE and HEUN), A., i, 902.
- 1-Phenyl-4:5-campho-3-pyrazolone and 1-Phenyl-3:4-campho-5-pyrazolone (WAHL), A., i, 778.
- Phenylcamphorformeneamine and Phenylcamphorformeneaminicarboxylic acid, aniline salt, and anilide (J. B. and A. TINGLE), A., i, 444.
- Phenylcarbamazide, *p*-bromo-*i* (CURTIUS and BURKHARDT), A., i, 137.
- Phenylcarbamic acid, *p*-nitrobenzylic salt, from the action of heat on the aniline derivative of *p*-nitrobenzylic nitrocarbamate (THIELE and DENT), A., i, 15.
- m*-bromo- and *p*-bromo-, methylic and ethylic salts (CURTIUS and PORTNER), A., i, 136.
- imino-, ethylic salt, and its platinochloride (STIEGLITZ and MCKEE), A., i, 594.
- nitro-, ethylic salts, preparation of (VITTENET), A., i, 756.
- dithio*-, benzylic salt (FROMM and BLOCH), A., i, 887.
- Phenylcarbamide, oxidation of (OECHSNER DE CONINCK), A., i, 421.
- m*-nitro-, and nitroso- (WALTHER and WLODKOWSKI), A., i, 591.
- Phenylcarbamiazide (CURTIUS and BURKHARDT), A., i, 137.
- Phenylcarbazinic acid, potassium salt (BUSCH and STERN), A., i, 956.
- Phenylcarbimide (*carbanil*), *p*-*di*bromo- (CURTIUS and PORTNER), A., i, 136.
- Phenylcarbimides, nitro-, preparation of (VITTENET), A., i, 756.
- Phenylcarboxyglutaconic acid. See Phenylpropylenetricarboxylic acid.
- β -Phenylcarboxyglutaranilide, ethylic salt (HERRMANN and VORLÄNDER), A., i, 814.

- Phenylcarboxyglutaric acid**, and amide and diethylamino-derivative (HERRMANN and VORLÄNDER), A., i, 812, 813.
- Phenylchloroacetic acid**, optical isomerism of (WALDEN), A., ii, 393.
- Phenyl-3-chlorophenylthiosemicarbazide** and **Phenyl-4-chlorophenylthiosemicarbazide** (MARCKWALD), A., i, 504.
- Phenyl-di- and -tetra-chlorostibine** (HASENBÄUMER), A., i, 209.
- Phenylcinnamylacrylic acid**, preparation of (THIELE and SCHLEUSSNER), A., i, 612.
- Phenyleitraconic acid and anhydride** (FITTIG and BROOKE), A., i, 437.
- Phenyl-*m*- and -*p*-cresylacetamides** (CRAMER), A., i, 153, 154.
- Phenyl-*p*-cresylaminoacetamide** and acetyl derivative (CRAMER), A., i, 153, 154.
- Phenyl-*m*- and -*p*-cresylbromaceto-lactones** (CRAMER), A., i, 153, 154.
- Phenyl-*p*-cresylethoxyacetic acid** and amide (CRAMER), A., i, 154.
- Phenyl-*m*- and -*p*-cresylethoxyaceto-lactones** (CRAMER), A., i, 154.
- Phenyl-*p*-cresylglycine** (CRAMER), A., i, 154.
- Phenylrotonic acid** (*α -methylcinnamic acid*), salts, and stereoisomeride (DAYN), A., i, 435.
- Phenylisocrotonic acid**, condensation of, with benzaldehyde (THIELE), A., i, 216.
- Phenylcyanamide**, formation of (RIZZO), A., i, 53.
- Phenyldiazolonethiol**, methylic ether of (BUSCH and STERN), A., i, 957.
- Phenyldihydroisolauronic acid**, salts, chloride (BLANC), A., i, 926.
- α -Phenyldihydro- β -naphthoic acid** (THIELE), A., i, 609.
- 3'-Phenyldihydroquinazoline**, preparation of (KULISCH), A., i, 944.
- Phenyldihydro-resorcinol and -resorcylnitrile** and ethylic phenyldihydro-resorcyrate, electrical conductivity of (VON SCHLLING and VORLÄNDER), A., i, 879.
- Phenyl-4 : 7-diketohehexanecarboxylic acid** (*phenacylhexulic acid*) (KEHRER and IGLER), A., i, 569.
- 5-Phenyl-1 : 3-diketocyclohexane-4 : 6-dicarboxylic acid**, ethylic salt (KNOEVENAGEL and FABER), A., i, 146.
- 3-Phenyl-1 : 5-diketophenocycloheptane-2 : 4-dicarboxylic acid**, diethylic salt (DIECKMANN), A., i, 914.
- 3-Phenyl-1 : 5-diketopiperidine 2-carboxylic acid**, ethylic salt (HERMANN and VORLÄNDER), A., i, 813.
- 1-Phenyldiketotetrahydro- α -triazine** (FRERICHs and BECKURTS), A., i, 809.
- μ -Phenyl-2 : 7-dimethylacridine**, and its diamino-derivative (MEYER and GROSS), A., i, 946.
- Phenyldimethylcoumalin**, action of alcoholic potash on (BOSSI), A., i, 521.
- Phenyldimethylethylmethane** (KONOWALOFF and EGOROFF), A., i, 801.
- 1-Phenyl-3 : 3-dimethylketopyrrolidone**, and monoxime and phenylhydrazone (CONRAD and HOCK), A., i, 633. from action of aniline on methylic γ -cyanodimethylacetoacetate (CONRAD and GAST), A., i, 258.
- Phenyldimethylcyclomethylenetriazan** (VOSWINCKEL), A., i, 958.
- Phenyldimethylsotriazole**, *p*-bromo-, and bromonitro- (PONZIO), A., i, 718.
- 2-Phenyl-3 : 4-dimethyl-4-isooxazole-acetic acid** (BOSSI), A., i, 552.
- 1-Phenyl-3 : 4-dimethylpyrazole**, 5-chloro- (MICHAELIS and RÜHMER), A., i, 233.
- 1-Phenyl-4 : 4(or 3 : 4)-dimethylpyrazolone**, chloro-, two isomeric forms of (MICHAELIS and RÜHMER), A., i, 234.
- 2-Phenyl-3 : 6-dimethylpyridine** (SCHOLTZ), A., i, 717.
- 2-Phenyl-3 : 4-dimethyl-6-pyridone** (BOSSI), A., i, 522.
- c*-Phenyl- α -dimethylthiobiuret** (DIXON), T., 402 ; F., 1899, 64.
- Phenyldimethylthiodiazolinethiol** (BUSCH and STERN), A., i, 956.
- Phenyl-*n*- and -*iso*-dinaphthazonium chloride**, salts, and 4-amino- and acetyl derivative (KEHRMANN and SUTHERST), A., i, 527, 528.
- Phenylditolylmethane**, *tetraamino*- (MEYER and GROSS), A., i, 945.
- Phenylditolylmethane-*o*-carboxylic acid** (GUYOT), A., i, 293.
- Phenyldixylmethane**, *p*-nitro-diamino-, and its diacetyl derivative (FRIEDLÄNDER and BRAND), A., i, 351.
- cyclo-Phenylenebenzylidene oxide**, reduction of (COHN), A., i, 295.
- 5 : 5-Phenylenebis-3-imino-1-phenyltriazoline** (CUNEO), A., i, 549.
- p*-Phenylene-bisnitroethanol- and -bis-nitroethylene** (THIELE), A., i, 585.
- o*-Phenylenediamine**, condensation of, with *m*-nitrobenzaldehyde (PINNOW and WISKOTT), A., i, 501.

- o*-Phenylenediamine, nitro-, condensation with benzaldehyde (PINNOW and WISKOTT), A., i, 500.
- p*-Phenylenediamine, heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
- Phenylenediamines, *o*-, *m*-, and *p*-, condensation of, with benzoin (JAPP and MELDRUM), T., 1043; P., 1899, 169.
- hydrochlorides of, action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
- methylation of (PINNOW), A., i, 588.
- Phenylenedibenzimidazole, and salts (WALTHER and PULAWSKI), A., i, 640.
- Phenylenedimethylcarbamide, and di-nitro-derivative (PINNOW and SÄMANN), A., i, 943, 944.
- Phenylenedimethylcarbamidecarboxylic acid. See 1':3'-Dimethylbenzimidazolone-2-carboxylic acid.
- o*-Phenylenedioxydiacetic acid (MOUREU), A., i, 700.
- 1:4-Phenylenediphosphoric acid (GENVRESSE), A., i, 342.
- Phenylenefurazan (ZINCKE and SCHWARTZ), A., i, 751.
- o*-nitro- (DROST), A., i, 752.
- Phenylenemethylcarbamide (PINNOW and SÄMANN), A., i, 944.
- m*- and *p*-Phenylenedithiocarbimides, compounds of, with anisole and phenetol (BAMBERGER), A., i, 697.
- Phenylethane. See Ethylbenzene.
- Phenylethynyl- β -*o*-aminophenylbenzimidazole (VON NIEMENTOWSKI), A., i, 646.
- i*-Phenylethoxyacetic acid, and salts (MCKENZIE), T., 755; P., 1899, 150.
- l*-Phenylethoxyacetic acid, and ethylic and metallic salts, and their specific rotations (MCKENZIE), T., 757; P., 1899, 150.
- Phenylethylcarbamylthiocarbimide (DIXON), T., 405; P., 1899, 64.
- n*-Phenylethylcarbamylthiourantoin (DIXON), T., 406; P., 1899, 64.
- Phenylethyldinaphthaaoposaffranine (FISCHER and HEPP), A., i, 79.
- Phenylethylene. See Styrene.
- Phenylethyleneglycol, methylene, ethylidene, and amyldene acetals (VERLEY), A., i, 376.
- Phenylethylglycocyincylcarbamide (FRERICHS and BECKURTS), A., i, 806.
- Phenylethylideneoxycyclootriazan, and its bromo- and chloro-derivatives (VOSWINCKEL), A., i, 958.
- 3-Phenyl-1-ethylphthalazone (GOTTLIEB), A., i, 512.
- β -Phenyl- α -ethylpropionic acid, *o*-cyano- (LANDSBERGER), A., i, 211.
- o*-Phenylethylsalicylic acid (HEYL), A., i, 216.
- α -Phenylethyl- β -thioallophanic acid, benzylic salt (DIXON), T., 406; P., 1899, 64.
- c*-Phenylethylthiobiuret (DIXON), T., 406; P., 1899, 64.
- Phenylethylthiosemicarbazide, 4-bromo-, 4-chloro-, and 2-nitro-; also the iminodiazolone and thiodiazolone from the first (MARCKWALD), A., i, 504, 505.
- Phenylethyltriazan, and hydrochloride and benzyldene compound (VOSWINCKEL), A., i, 959.
- Phenylfurazan, *o*-dichloro- (WERNER and BLOCH), A., i, 754.
- Phenylfurfurylamine, and salts and acetyl derivative (MARQUIS), A., i, 798.
- Phenylglucosazone, *p*-nitro- (HYDE), A., i, 689.
- Phenylglutaconic acid, ethylic salt (RUHEMANN), T., 248; P., 1899, 6.
- β -Phenylglutaranilic acid (HERRMANN and VORLÄNDER), A., i, 813.
- β -Phenylglutaric acid, methylic salt, imide and anhydride (HERRMANN and VORLÄNDER), A., i, 812.
- ethylic salt, condensation of, with ethylic oxalate (DIECKMANN), A., i, 676.
- condensation of, with ethylic phthalate (DIECKMANN), A., i, 914.
- β -Phenylglutaric acid, α -cyano-, ethylic salt, condensation of, with ethylic bromacetate (THORPE and UDALL), T., 905; P., 1899, 184.
- m*-nitro- (KNOEVENAGEL and SCHÜRENBURG), A., i, 214.
- p*-nitro- (KNOEVENAGEL and HOFFMANN), A., i, 215.
- Phenylglutaro-piperidide and -piperidocarboxylic acid (HERRMANN and VORLÄNDER), A., i, 813.
- Phenylglycyl-carbamide, *p*-ethoxy-phenylcarbamide, -ethylurethane, -methylcarbamide, and -phenylcarbamide (FRERICHS and BECKURTS), A., i, 806.
- Phenylglycollic acid. See Mandelic acid.
- Phenylglyoxylic acid, *p*-bromo-, and *p*-chloro- (COLLET), A., i, 699.
- Phenylguaiaicol, *o*-nitro-, and *p*-nitro- (BOUVEAULT), A., i, 264.
- Phenylhexahydropyridazine, salts of (GABRIEL and COLMAN), A., i, 391.

- Phenylhydrazinaceto-carbamide**, -methylcarbamide, -phenylcarbamide, and -*p*-ethoxyphenylcarbamide, and their benzylidene derivatives (FRERICHS and BECKURTS), A., i, 808.
- Phenylhydrazine**, action of chromic acid and potassium dichromate on (OECHSNER DE CONINCK), A., i, 243. action of methylic *dichloroxalate* on (ANSCHÜTZ and STIEPEL), A., i, 573. behaviour of, towards mercuric acetate (BAMBERGER), A., i, 688. combination of, with alkylic iodides (GENVRESSE and BOURCET), A., i, 501. compound of bromanilic acid with (DESCOMPS), A., i, 690. compounds of, with bismuth chloride, bismuth nitrate, zinc sulphite, and manganese sulphite (PASTUREAU), A., i, 205. compounds of, with calcium chloride, calcium bromide, and strontium iodide (MOITESSIER), A., i, 205. compound of, with chloranilic acid (DESCOMPS), A., i, 205; (IMBERT and DESCOMPS), A., i, 690. cupro-chloride, -bromide, and -iodide (MOITESSIER), A., i, 807. propylic iodide, and butylic iodide (LE CANU), A., i, 808. sodium bisulphite compound of (PASTUREAU), A., i, 807. compounds of, with metallic thio-sulphates, dithionates, and hypophosphites (MOITESSIER), A., i, 688. tricarballylate and citrate (MANUELLI and DE RIGHI), A., i, 885. compounds with salts of zinc, cadmium, and nickel (MOITESSIER), A., i, 752. detection of (SIMON), A., ii, 134.
- Phenylhydrazine**, *p*-nitro-, as a reagent for the detection and isolation of ketones and aldehydes (BAMBERGER), A., i, 666. picrate, β -formyl, β -acetyl, β -benzoyl, and triacetyl derivatives (HYDE), A., i, 688.
- Phenylhydrazine- $\alpha\beta$ dicarboxylic acid**, ethylic salt (RUPE and LABHARDT), A., i, 356.
- $\alpha\beta$ -Phenylhydrazinoacetic acid**, formation of (FRERICHS and BECKURTS), A., i, 808.
- Phenylhydrazinoethylidenephénylhydrazone** (FREER), A., i, 358.
- Phenylhydrazinoformic acid**, ethylic salt, *o*-nitrobenzylidene derivative (RUPE and LABHARDT), A., i, 356.
- Phenylhydrazinoformylphenylketodihydrotriazole**, and its silver derivative (FRERICHS and BECKURTS), A., i, 809.
- Phenylhydrazinoglyoxylyl-phenylcarbamide**, and -*p*-ethoxyphenylcarbamide (FRERICHS and BECKURTS), A., i, 809.
- Phenylhydrazone**, $C_{23}H_{24}N_4O$, obtained from phenyl phthalidemethyl ketone (HAMBURGER), A., i, 144.
- Phenylhydroxyamylthiocarbamide**, and the action of hydrochloric acid on it (JÄNECKE), A., i, 477.
- Phenylhydroxylamine**, discovery of (WOHL), A., i, 49. formation of (HABER), A., i, 269; (BAMBERGER and TSCHIRNER), A., i, 348. direct production of, from aniline (BAMBERGER and TSCHIRNER), A., i, 687.
- Phenylhydroxylamine**, *p*-chloro- and *exo*-chloro- (BAMBERGER, BÜSDORF, and SZOLAYSKI), A., i, 341. nitroso-, compound of, with zinc ethyl (HANTZSCH), A., i, 692.
- Phenyl- β -hydroxynaphthyl-benzyloxy-acetolactone**, -bromacetolactone, -ethoxyacetolactone, and -methoxyacetolactone (SIMONIS), A., i, 154.
- Phenylhydroxypivalic acid**, and phenylhydrazone (STRITAR), A., i, 890. oxidation of (DAIN), A., i, 436.
- Phenylic allylic ether** (SOLONINA), A., i, 681. allylic, *isoamylic*, *isobutylic*, ethylic, methylic, and *n*- and *iso*-propylic carbonates, preparation of (CAZENEUVE and MOREL), A., i, 29. *o*-aminobenzyllic ether, and *o*-amino- (THIELE and DIMROTH), A., i, 426. benzyllic, butylic, caprylic, heptylic, and octylic carbonates (MOREL), A., i, 875. carbamate, preparation of, and *p*-chloro- (MOREL), A., i, 876. chlorocarbonate (BARRAL and MOREL), A., i, 802. and *trichloro*-, *tribromo*-, and *pentachloro*- (BARRAL and MOREL), A., i, 747. *p*-chlorophenyllic carbonate (MOREL), A., i, 876. dipropylcarbamate (MOREL), A., i, 877. ethylic carbonate, and *p*-chloro- (MOREL), A., i, 876. ethylic chlorophosphate, phosphamide, and phosphanilide (MOREL), A., i, 747. phosphates (MOREL), A., i, 264, 492, 747. propylic phosphate (MOREL), A., i, 492. guaiacilic carbonate, and *p*-chloro- (MOREL), A., i, 876.

- Phenyl guaiacylic ethylenic ether** (BOSCOGRANDE), A., i, 427.
 methylic, ethylic, propylic, *isopropylic*, *isobutylic*, *isoamyllic*, and allylic carbonates, refractive indices of (MOREL), A., i, 876.
o-nitrobenzylic ether (THIELE and DIMROTH), A., i, 426.
 phenyl-carbamate and -carbazinate (MOREL), A., i, 876, 877.
trisulphide (TROEGER and HORNING), A., i, 906.
o-titanate (KLING), A., i, 429.
p-tolyl carbonate (MOREL), A., i, 876.
Phenyliminophenylcarbamic acid, ethylic salt (DAINS), A., i, 593.
Phenyliminotriazoline, bromo- (BAMBERGER and VON GOLDBERGER), A., i, 548.
1'-Phenylisoindazolone, and benzoyl derivative (KÖNIG and REISSERT), A., i, 457.
1'-Phenylindole, *p*-chloro-, and *p*-bromo- (COLLET), A., i, 699.
2'-Phenylindole, 3-nitro-1'-nitroso- (STOERMER and DRAGENDORFF), A., i, 46.
 nitroso-, formula of (ANGELI and SPICA), A., i, 938.
 isonitroso- and acetyl and benzoyl derivatives (SPICA and ANGELICO), A., i, 938.
Phenyl iodomethyl ketone (COLLET), A., i, 434.
Phenylitaconic acid, and anhydride (FITTIG and BROOKE), A., i, 437.
 oxidation of (FITTIG and KÖHL), A., i, 418.
 β -Phenyllactic acid, α -amino-, and copper salt (ERLENMEYER), A., i, 759.
d- and *l*-, α -bromo- and cinchonine salts, specific rotations of (ERLENMEYER and MOEBES), A., i, 896.
Phenyllactosazone, *p*-nitro- (HYDE), A., i, 689.
 α -Phenyl- α' -lutidone. See 2-Phenyl-3:4-dimethyl-6-pyridone.
Phenylmalonic acid, *trinitro*-, ethylic salt and metallic salts (JACKSON and PHINNEY), A., i, 602.
Phenylmaltosazone, *p*-nitro- (HYDE), A., i, 689.
Phenylmesaconic acid, and salts (FITTIG and BROOKE), A., i, 437.
i-**Phenylmethoxyacetic acid**, preparation of (MCKENZIE), T., 760.
l-**Phenylmethoxyacetic acid**, and salts, preparation and specific rotation of, conductivity and affinity constant of (MCKENZIE), T., 761; P., 1899, 150.
Phenyl- δ -methoxybutylthiocarbamide (SCHLINCK), A., i, 539.
4-Phenyl-6-methyl-5-aceto-2-pyrone (RUHEMANN), T., 415; P., 1899, 15.
 γ -Phenyl- γ -methylaconic acid (STOBBE), A., i, 902.
Phenylmethylacridinium hydroxide, conversion of, into phenylmethylacridol (HANTZSCH), A., i, 400.
Phenylmethylalanine (BISCHOFF and TARASCHTSCHANSKY), A., i, 202.
Phenyl-3-methylantranol (GUYOT), A., i, 294.
Phenylmethylarabinosazone (MORRELL and CROFTS), T., 791; P., 1899, 99.
1:3-Phenylmethyl-4-benzeneazo-5-pyrazolone (BÜLOW), A., i, 356.
1-Phenyl-2-methyl-3:4-campho-5-pyrazolone and **1-Phenyl-2-methyl-4:5-campho-3-pyrazolone** (WAHL), A., i, 778.
Phenylmethylcarbamic chloride, action of, on sodium acetanilide (DIXON), T., 384.
 α -Phenylmethylcarbamyl- β -phenylthiosemicarbazide (DIXON), T., 403; P., 1899, 64.
Phenylmethylcarbamylthiocarbimide (DIXON), T., 401; P., 1899, 64.
***n*-Phenylmethylcarbamylthiourantoin** (DIXON), T., 403; P., 1899, 64.
Phenylmethylcarbinol, and its benzene-sulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
4'-Phenyl-3-methyl-3':4'-dihydroquinazoline, and its benzoyl and 2'-bromo-derivatives (HANSCHKE), A., i, 775.
1-Phenyl-4-methyl-2:3-dihydro-1:2:5-triazole (*phenyl-3-methyl-1:2-oxypyrrro-1:4-diazole*) 2:3-oxide, and nitro-derivative (PONZIO), A., i, 718.
Phenylmethyldihydroresorcylnitrile, electric conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
3-Phenyl-1'-methyl-2':4'-diketotetrahydroquinazoline (MCCOY), A., i, 360.
 γ -Phenyl- γ -methylenepyrrotartaric acid (STOBBE), A., i, 900; (STOBBE and HEUN), A., i, 902.
1-Phenyl-3-methyl-4-ethyl-2:3-dihydro-1:2:5-triazole, 2:3-oxide (*phenyl-2-methyl-3-ethyl-1:2-oxypyrrro-1:4-diazole*) and salts and nitro-derivative (PONZIO), A., i, 827.
1-Phenyl-4-methyl-3-ethyl-2:3-dihydro-1:2:5-triazole, 2:3-oxide, and hydrochloride and nitro-derivative (PONZIO), A., i, 827.
 β -Phenyl- α -methylethylenelactic acid, and its salts, preparation of (DAIN), A., i, 436.
Phenylmethylethylenedioxytriazan (VOSWINCKEL), A., i, 958.

- 1-Phenyl-3-methyl-4-ethylsotriazole**, amino-, bromo-, chloro-, chloronitro-, and nitro- (PONZIO), A., i, 827.
- μ -**Phenyl- β -methyl- α -ethylloxazoline**, from action of benzoic chloride on 3-bromo-2-aminopentane hydrobromide; also its picrate (JÄNECKE), A., i, 477.
- Phenylmethylethylloxypyrradiazole**. See Phenylmethylethylhydro-1:2:5-triazole oxide.
- Phenylmethylethylthiodiazolinethiol** (BUSCH and STERN), A., i, 956.
- Phenylmethylglucosazone** (MORRELL and CROFTS), T., 788; P., 1899, 99.
- Phenylmethylglycyl-*isobutylurethane***, -ethylurethane, and -carbamide (FRERICHS and BECKURTS), A., i, 806, 807.
- 3:1-Phenylmethylcyclohexane**, 5-amino- (KNOEVENAGEL and GOLDSMITH), A., i, 291.
- 3:1-Phenylmethylcyclohexanol-5**, and acetyl derivative (KNOEVENAGEL and GOLDSMITH), A., i, 290.
- 3:1-Phenylmethylcyclohexanone-5**, and oxime (KNOEVENAGEL and GOLDSMITH), A., i, 291.
- hydroxylamino-oxime (HARRIES and MATFUS), A., i, 583.
- 3:1-Phenylmethylcyclohexene** (KNOEVENAGEL and GOLDSMITH), A., i, 291.
- 3-Phenyl-1-methyl-5-cyclohexenone**, dimeric form of, and salts (KNOEVENAGEL and REINECKE), A., i, 341.
- α - and β -oximes of, and their salts (KNOEVENAGEL and GOLDSMITH), A., i, 25.
- p*-chloro-, and oximes (KNOEVENAGEL and WEISS), A., i, 215.
- m*-nitro-, and its oxime and phenylhydrazone (KNOEVENAGEL and SCHÜRENBERG), A., i, 214.
- p*-nitro-, and its oxime and phenylhydrazone (KNOEVENAGEL and HOFFMANN), A., i, 215.
- 3-Phenyl-1-methyl-5-cyclohexenonecarboxylic acid**, *p*-nitro-, ethylic salt (KNOEVENAGEL and HOFFMANN), A., i, 214.
- 3-Phenyl-1-methyl-5-cyclohexenone-2:4-dicarboxylic acid**, *p*-chloro-, ethylic salt (KNOEVENAGEL and WEISS), A., i, 215.
- Phenylmethylhydrazine**, action of chromic acid and potassium dichromate on (OECHSNER DE CONINCK), A., i, 243.
- Phenylmethylhydrazinopyruvic acid**, preparation of (HARTLEY and DOBRIE), T., 645.
- Phenylmethyl-3:4-iminazolone-1:2-naphthaquinone** (KEHRMANN and ZIMMERLI), A., i, 80.
- Phenylmethyliminothiazolinethiocarbamide**, and its benzyl derivative (FROMM and PHILIPPE), A., i, 485.
- γ -**Phenyl- γ -methylitaconic acid**, and anhydride (STOBBE), A., i, 901.
- γ -**Phenyl- γ -methylisoitaconic acid**, and its salts and anhydride (STOBBE and HEUN), A., i, 902.
- 4'-Phenyl-3-methyl-2'-ketodihydroquinazoline**, and salts and benzoyl derivative (HANSCHKE), A., i, 775.
- Phenyl methyl ketone**, *p*-chloro-, and its oxime and phenylhydrazone (COLLET), A., i, 699.
- 4'-Phenyl-3-methyl-2'-ketotetrahydroquinazoline**, and acetyl derivative (HANSCHKE), A., i, 776.
- Phenyl methyl ketoxime**, *p*-bromo- (COLLET), A., i, 699.
- Phenylmethylmethenylaminophenylimidine**, and salts (WHEELER and JOHNSON), A., i, 269.
- Phenylmethylcyclomethylenetriazane** (VOSWINCKEL), A., i, 959.
- Phenylmethyl-methyliminothiazolinethiocarbamide**, and its hydrochloride (FROMM and PHILIPPE), A., i, 485.
- 1:3-Phenylmethyl-4-*p*-nitrobenzene-azo-5-pyrazolone**, *p*-nitro- (BÜLOW), A., i, 272.
- Phenylmethylsotriazole**, amino-, bromo-, dibromo-, chloro-, dichloro-, chloronitro-, iodo-, iodonitro-, and nitro- (PONZIO), A., i, 719.
- Phenyl-3-methyloxanthranol** (GUYOT), A., i, 294.
- μ -**Phenyl- β -methyloxazoline**, and its *o*-nitro- and *p*-nitro-derivatives (UEDINCK), A., i, 497, 498.
- 1:4-Phenylmethyl-3-oxydiazolone** (RUPE and LABHARDT), A., i, 356.
- Phenylmethyloxycyclomethylenetriazane**, and its bromo- and chloro-derivatives (VOSWINCKEL), A., i, 958.
- Phenyl-3-methyl-1:2-oxypyrrro-1:4-diazole**. See 1-Phenyl-4-methyl-2:3-dihydro-1:2:5-triazole 2:3-oxide.
- γ -**Phenyl- γ -methylparaconic acid**, *cis*- and *trans*- β -bromo-, and *trans*-ethylic salt (STOBBE and HEUN), A., i, 902.
- β -**Phenyl- α -methylpropionic acid**, *o*-cyano-, and ethylic salt (LANDSBERGER), A., i, 211.
- Phenylmethylisopropyl-methylamine**, and -nitromethane (KONOWALOFF and EGOROFF), A., i, 801.
- 1-Phenyl-3-methylpyrazole**, 5-chloro- (MICHAELIS and RÖHMER), A., i, 233.

- 1-Phenyl-3-methylpyrazole, 5-chloro-, 4:5-dichloro-, *p*-4:5-trichloro-, 5-chloro-4-bromo-, 5-chloro-4-iodo-, 5-iodo-, and their alkyl haloid and perhaloid compounds (MICHAELIS and PASTERNAK), A., i, 942.
- 1-Phenyl-4-methylpyrazole, 3:5-dichloro- (MICHAELIS and RÖHMER), A., i, 234.
- 1-Phenyl-3-methylpyrazole-4-phosphinic acid, 5-chloro- (MICHAELIS and PASTERNAK), A., i, 942.
- 4-Phenyl-6-methylpyridone and its platinumchloride (RUHEMANN), T., 413; P., 1899, 55.
- 4-Phenyl-6-methylpyridone-5-carboxylic acid and ethylic salt (RUHEMANN), T., 412; P., 1899, 55.
- 4-Phenyl-6-methyl-2-pyrone (RUHEMANN and CUNNINGTON), T., 780; P., 1899, 169.
- 4-Phenyl-5-methyl-2-pyrone-6-carboxylic acid, *p*-nitro-, ethylic salt (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.
- 4-Phenyl-6-methyl-2-pyrone-5-carboxylic acid, ethylic salt, hydrolysis of, and action of ammonia on (RUHEMANN), T., 251; P., 1899, 6.
action of alcoholic ammonia on (RUHEMANN), T., 412; P., 1899, 55.
action of ethylamine on (RUHEMANN and CUNNINGTON), T., 780; P., 1899, 169.
- γ -Phenyl- γ -methylpyrotartaric acid, and its salts (STOBEE), A., i, 901.
- 1-Phenyl-2-methylpyrrolidine, and its *m*-nitro-derivative (SCHOLTZ and FRIEMEHLT), A., i, 541.
- 4'-Phenyl-3-methylquinazoline, 2'-chloro- (HANSCHKE), A., i, 775.
- 2'-Phenyl-3'-methylquinoline, 4-amino-. See Flavaneline.
- o*-Phenylmethylsalicylic acid (HEYL), A., i, 216.
- α -Phenylmethylsemicarbazide (BAMBERGER and VON GOLDBERGER), A., i, 548.
- Phenylmethyltetramethylenedisulphone (AUTENRIETH and WOLFF), A., i, 580.
- μ -Phenyl- β -methylthiazoline, from action of nitrous acid on propylene- ψ -thiocarbamide (GABRIEL and LEURD), A., i, 104.
- α -Phenylmethyl- β -thioallophanic acid, benzylic salt (DIXON), T., 404; P., 1899, 64.
- c*-Phenylmethylthiouret (DIXON), T., 402; P., 1899, 64.
- Phenylmethylthiocarbamide, formation of (WALLACH), A., i, 659.
- Phenylmethylthiodiazoline disulphide action of ammonia and aniline on (BUSCH), A., i, 953.
- 3'-Phenyl-1'-methylthio-4'-ketodihydroquinazoline, and 3'-Phenyl-2'-methylthio-4'-ketodihydroquinazoline (MCCOY), A., i, 360.
- Phenylmethylthiosemicarbazide, the imidiazolone and thiodiazolone from (MARCKWALD), A., i, 504.
- 3-bromo-, 4-bromo-, 2:4:5-tribromo-, 2-chloro-, 3-chloro-, 2-nitro-, 3-nitro-, and 4-nitro- (MARCKWALD), A., i, 504, 505.
- 4'-Phenyl-3-methyl-2'-thiotetrahydroquinazoline (HANSCHKE), A., i, 776.
- 1-Phenyl-2-methyltriazoline, 3-imino-, and salts (BAMBERGER and VON GOLDBERGER), A., i, 548.
- 1-Phenyl-5-methyltriazoline, 3-imino- (CUNEO), A., i, 548.
- Phenylisnaphthaphenazonium chlorides, 4'-*p*-diamino-, 2:4-*p*-triamino-, 2-nitro-4'-*p*-diamino-, and *p*-nitro-4'-amino-, and their acetyl derivative (KEHRMANN, RADEMACHER, and FEDER), A., i, 236.
chloride, 2:4-diamino-. See Rosinduline chloride, 2-amino-.
- Phenylisonaphthaphenazonium salts, 2-amino-, 2:4-diamino-, and 2-nitro- (KEHRMANN and LEVY), A., i, 238, 239.
chloride, 2'-amino-, acetyl derivative and salts (KEHRMANN and RAVINSON), A., i, 525.
2:3'-diamino-, 3:2'-diamino-, and 2-amino-3'-acetamino- (KEHRMANN and AEBI), A., i, 526.
- Phenylisnaphthazonium and its salts (SCHAPOSCHNIKOFF), A., i, 431.
- Phenyl- α - and - β -naphthylisodithiodiazolone (BUSCH and BEST), A., i, 956.
- Phenyl- α - and - β -naphthylthiosemicarbazides and their 4-bromo-derivatives (MARCKWALD), A., i, 504.
- Phenylisnitramine, compound of, with zinc ethyl (HANTZSCH), A., i, 692.
- Phenylisnitroazoethane. See Acetaldehyde, nitro-, phenylhydrazone.
- Phenylisnitroazopentane. See Valeraldehyde, nitro-, phenylhydrazone.
- Phenylisnitroazopropane. See Propaldehyde, nitro-, phenylhydrazone.
- Phenyl-3-nitrobenzimidazole, 2'-nitro- (PINNOW and WISKOTT), A., i, 501.
- Phenyl-1'-nitrobenzylbenzimidazole, 2'-nitro- (PINNOW and WISKOTT), A., i, 501.
- Phenyl-*p*-nitrobenzyltrimethylammonium chloride (WEDEKIND), A., i, 352; (WEDEKIND and GONSWA), A., i, 806.

- Phenylnitroethanol**, *o*-nitro-, and its acetyl derivative (THIELE), A., i, 585.
- Phenylnitromethane**. See Toluene, nitro-.
- Phenylisnitromethane**. See Toluene, *o*-isnitro-.
- 1-Phenyl-4-nitropyrazole**, from action of heat on the hydrazones of nitromalonic aldehyde (HILL and TORREY), A., i, 788.
- Phenylorcyacetolactone**, and its bromo- and dibromo-derivatives (SIMONIS), A., i, 155.
- iso-Phenylorcyacetolactone** (SIMONIS), A., i, 155.
- Phenylloxamide**, formation of (DIXON), T., 410.
- α -Phenylloxamyl- β -phenylthiocarbamide** (DIXON), T., 410; P., 1899, 65.
- Phenylloxanthranol**, condensation of, with toluene, and with benzene (GUYOT), A., i, 295.
- chloro-** (HALLER and GUYOT), A., i, 221.
- Phenylloximido-oxazolone**, hydrate, methylic salt, and potassium salts of (GUINCHARD), A., i, 781.
- Phenyl-*m*(*p*)-oxytolimidazole, β -*o*-amino-** (VON NIEMENTOWSKI), A., i, 645.
- Phenyl pentadecyl ketone**, boiling point of, in a vacuum (KRAFFT), A., ii, 465.
- Phenylpentadecylthiocarbamide** (JEFFREYS), A., i, 731.
- 2-Phenylcyclopentane-4:5-dione-1:3-dicarboxylic acid**, diethylic salt, and its phenazine derivative (DIECKMANN), A., i, 676.
- μ -Phenylpentylene- ψ -thiocarbamide**, from action of hydrochloric acid on phenylhydroxyamylthiocarbamide; also its picrate (JÄNECKE), A., i, 477.
- Phenylphenazonium**, and its salts (SCHAPOSCHNIKOFF), A., i, 431.
- Phenyl-*o*-phenylene-*p*-aminobenzoylamidine**, and amino-, and Phenyl-*o*-phenylene-*p*-nitrobenzoylamidine, and *p*-nitro- (MUTTELET), A., i, 354.
- Phenylphosphoric acid** (GENVRESSE), A., i, 342.
- Phenylphthalidemethyl ketone**, and action of bromine on; oxime (HAMBURGER), A., i, 143.
- α -Phenyl- β -piperidylcarbamide** (MANUELLI and COMANDUCCI), A., i, 888.
- Phenylpropanetricarboxylamide** (RUHEMANN), T., 247; P., 1899, 6.
- Phenylpropanetricarboxylic acid**, ethylic salt, action of ammonia on (RUHEMANN), T., 247; P., 1899, 6.
- Phenylpropenylmalonic acid**, and salts (THIELE and MEISENHEIMER) A., i, 603.
- Phenylpropionic acid hydrobromide**, preparation of bromindone from (LANSEER), A., i, 895.
- ureide of** (RUHEMANN and CUNNINGTON), T., 958; P., 1899, 185.
- ethylic salt**, condensation of, with acetylacetone, and with benzoylacetone (RUHEMANN), T., 415; P., 1899, 15.
- condensation of**, with acetylacetone, with benzoylacetone, and with ethylic oxaloacetate (RUHEMANN and CUNNINGTON), T., 780; P., 1899, 169.
- action of** diethylamine, hydroxylamine, carbamide, benzamide, and bromine on (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
- condensation of**, with ethylic alkylacetates (RUHEMANN and CUNNINGTON), T., 783; P., 1899, 169.
- condensation of**, with ethylic acetoacetate, and with ethylic benzoylacetate (RUHEMANN), T., 251; P., 1899, 6.
- Phenylpropionic acid, *p*-nitro-**, ethylic salt, condensation of with ethylic acetoacetate and with ethylic benzoylacetate (RUHEMANN and CUNNINGTON), T., 782; P., 1899, 169.
- Phenylpropionlehydroxamic acid**, and its barium, silver, and methylic salts (RUHEMANN and CUNNINGTON), T., 957; P., 1899, 185.
- Phenylpropionic acid**, menthylic salt, optical activity and molecular volume of (TSCHUGÄEFF), A., ii, 3.
- α -Phenylpropionic acid** (*hydratropic acid*), dibromo-, action of sodium carbonate on (SEMENOFF), A., i, 867.
- i*-Phenylpropoxyacetic acid**, and salts (MCKENZIE), T., 764.
- i*-Phenylisopropoxyacetic acid**, and zinc salt (MCKENZIE), T., 754; P., 1899, 150.
- l*-Phenylisopropoxyacetic acid**, and sodium and potassium salts, specific rotations of (MCKENZIE), T., 765; P., 1899, 150.
- Phenylpropylenetricarboxylic acid**, ethylic salt, action of ammonia on (RUHEMANN), T., 248; P., 1899, 6.
- Phenylpropylethylene**, formation of (DAIN), A., i, 436.
- β -Phenyl- α -isopropylethylenelactic acid**, and salts (DAIN), A., i, 436.
- Phenylpropyldenemalonic acid**, and its barium salt (THIELE and MEISENHEIMER), A., i, 603.

- Phenylpropylsulphone**, formation of, and bromo-derivative (TROEGER and UHDE), A., i, 607, 608.
- Phenylisopropylsulphone** (TROEGER and UHDE), A., i, 607.
- 1-Phenylpyrazole**, 3:5-dichloro- (MICHAELIS and RÖHMER), A., i, 234.
- 1-Phenyl-3:5-pyrazolidone**. See 3-Hydroxy-1-phenyl-5-pyrazolone.
- 3-Phenylpyrazoline**, 5-imino-, and its salts (SEIDEL), A., i, 139.
- 1-Phenyl-5-pyrazolone**, 3-chloro-, 4-iso-nitroso- (MICHAELIS and RÖHMER), A., i, 234.
- m*-nitro- (ROUGY), A., i, 753.
- 1-Phenyl-5-pyrazolone-3-carboxylic acid** (LEIGHTON), A., i, 51.
- 3-Phenylpyridazine**, amino-, 6-chloro-, 6-iodo-, and nitro-derivatives (GABRIEL and COLMAN), A., i, 390.
- Phenylpyridazinone**, bromo- (GABRIEL and COLMAN), A., i, 390.
- 3-Phenylpyridazone** (GABRIEL and COLMAN), A., i, 390.
- Phenylpyrrolidone** (BAILLIE and TAFEL), A., i, 268.
- 4-Phenyl-2-pyrone-5:6-dicarboxylic acid**, ethylic salt (RUHEMANN and CUNNINGTON), T., 783; P., 1899, 169.
- 2'-Phenylquinoline-4-carboxylic acid** (GARZAROLLI-THURNLACKH), A., i, 940.
- Phenylresorcyllacetolactone**, and its di-bromo-derivative (SIMONIS), A., i, 155.
- iso*-**Phenylresorcyllacetolactone** (SIMONIS), A., i, 154.
- Phenylrosinduline**, amino-, and salts, and phenylsulphone derivative (KEHRMANN and LOCHER), A., i, 82.
- Phenylaposafranine** (SCHAPOSCHNIKOFF), A., i, 432.
- o*-**Phenylsalicylic acid** (HEYL), A., i, 701.
- methylic and ethylic salts (HEYL), A., i, 216.
- Phenylsarcosine**, formation of (MILLER, PLÖCHL, and KOLLEGORSKY), A., i, 128.
- Phenylsemicarbazide**, hydrochloride, sodium and acetyl derivatives, and formation of (CURTIUS and BURKHARDT), A., i, 137.
- p*-nitro- (HYDE), A., i, 689.
- Phenylsemicarbazideacetate**, ethylic salt (CURTIUS and BURKHARDT), A., i, 137.
- Phenylsemicarbazidecarboxylic acid**, ethylic salt (RUPE and LABHARDT), A., i, 356.
- Phenylstibic acid**, **Phenylstibine oxide**, and sulphide (HASENBÄUMER), A., i, 209.
- Phenylsulphonacetyl-amy lurethane**, -isobutylurethane, -carbamide, -ethylurethane, and -methylcarbamide (FRERICHS), A., i, 795, 796.
- Phenylsulphonebutyric acid** and its salts and chloride and bromo-derivative, ethylic salt (TROEGER and UHDE), A., i, 606, 608.
- Phenylsulphoneisobutyric acid**, and salts, and chloride (TROEGER and UHDE), A., i, 607, 608.
- Phenylsulphonosodioacetic acid**, ethylic salt, substitution of alkyls for sodium in (MICHAEL), A., i, 816.
- Phenyltartronic acid**, trinitro-, ethylic salt, and nitrite, acetyl and benzoyl derivatives (JACKSON and PHINNEY), A., i, 602.
- 1-Phenyl-*ac*-tetrahydronaphthalene-3-carboxylic acid**, and 2-bromo-derivative (THIELE and MEISENHEIMER), A., i, 614.
- 1-Phenyltetrahydro- β -naphthenone** (GOLDSCHMIEDT and KNÖPFER), A., i, 141.
- 2-Phenyltetramethylene**, -disulphide, -disulphone, and bromo-derivative of the latter (AUTENRIETH and WOLFF), A., i, 580.
- μ -**Phenylthiazoline**, from action of nitrous acid on ethylene- ψ -thiocarbamide, and its picrate and dichromate (GABRIEL and LEUPOLD), A., i, 104.
- Phenyl δ thiobiuret**, action of monochloroacetone and acetic anhydride on; also action of hydrogen chloride on a mixture of it with ethylic acetoacetate (FROMM and PHILIPPE), A., i, 484.
- Phenylthiocarbamide**, action of chromic acid and potassium dichromate on (OECHSNER DE CONINCK), A., i, 244.
- oxidation of (OECHSNER DE CONINCK), A., i, 421.
- Phenylthiocarbazine**, potassium salt, electrolysis of solution of (SCHALL and KRASZLER), A., i, 414.
- Phenylthiocarbazinic acid**, methylic, ethylic, and benzylic salts, and its disulphide (BUSCH and STERN), A., i, 957.
- Phenyl δ thiocarbazinic acid**, ethylic and benzylic salts of (BUSCH and BECKER), A., i, 953.
- Phenylthiocarbimide**, formation of (DIXON), T., 395; P., 1899, 63; (DUNLAP), A., i, 697.
- action of, on sodium acetanilide (DIXON), T., 384.
- substance obtained by action of aluminium chloride on (BAMBERGER), A., i, 694.

- Phenylthiocarbimide**, *m*-bromo- (BAMBERGER), A., i, 696.
o-chloro-, and *di*-*o*-chloro- (GROSCH), A., i, 509.
- Phenyl-dithiodiazolone**, *o*-phenylenediamine salt of (BUSCH and WOLFF), A., i, 949.
 disulphide, action of amines on (BUSCH and WOLFF), A., i, 949.
- Phenyl-dithiodiazoloneacetonysulphide** (BUSCH and WOLFF), A., i, 951.
- Phenyl-dithiodiazolone-anisalsulphime**, *m*-nitrobenzalsulphime, and *p*-piperonalsulphime (BUSCH and WOLFF), A., i, 951.
- Phenyl-dithiodiazolonefurfuralsulphime** (BUSCH and WOLFF), A., i, 950.
- Phenyl-dithiodiazolonehydrosulphamine**, condensation of, with aldehydes and ketones (BUSCH and WOLFF), A., i, 950.
- Phenyl-dithiodiazolonemercaptopl** (BUSCH and WOLFF), A., i, 951.
- Phenyl-dithiodiazolonephenic acid** (BUSCH and STRAMER), A., i, 949.
- Phenyl-dithiodiazoloneethiol**, its ethylic ether, iodine additive product, bromide, ethylenic ether, benzylic ether, benzoyl derivative and diazo-sulphide (BUSCH and STRAMER), A., i, 949.
 α - and β -aminonaphthyl ethers of, and hydrochloride, diazo-compounds, and azo-dyes from (BUSCH and WOLFF), A., i, 950.
 o - and *m*-diaminophenyl ethers of, and azimino-compound of (BUSCH and WOLFF), A., i, 949.
- o*-Phenylthiohydantoic acid** (RIZZO), A., i, 53.
- α -Phenyl-dithio-C-methylketuretcarb-oxylic acid**, and its ethylic and dibenzylbenzylic salts; also the action of acetic anhydride on it (FROMME and PHILIPPE), A., i, 484.
- 1-Phenyl-3-thiotriazolone** and its silver and barium compounds (PELLIZZARI and FERRO), A., i, 550.
- Phenylthiourea**, formation of (DIXON), T., 410; P., 1899, 65.
- Phenyl-*m*(*p*)-tolimidazole**, *o*-amino-, acetyl derivative (VON NIEMEN-TOWSKI), A., i, 645.
- Phenyltolylanthrone** (GUYOT), A., i, 294.
- e*-Phenyl- α -*o*-tolyl-*e*-benzylthiobiuret** (DIXON), T., 407; P., 1899, 64.
- α -Phenyl- β -*p*-tolylcarbamide** (MANUELLI and COMANDUCCI), A., i, 888.
- Phenyl-*p*-tolyl-disulphide** (KOHLE and MACDONALD), A., i, 905.
- Phenyl-*o*-tolylenediamine**, methenyl derivative, picrate, mercurichloride (JACOBSON and LISCHKE), A., i, 276.
- Phenyl-*o*-tolylene-*p*-nitrobenzenylamidine** (MUTTELET), A., i, 354.
- e*-Phenyl- α -*o*-tolyl-*e*-ethylthiobiuret**, and ***e*-Phenyl- α -*p*-tolyl-*e*-ethylthiobiuret** (DIXON), T., 405, 406; P., 1899, 64.
- Phenyl-*p*-tolylformamidine** (WHEELER and JOHNSON), A., i, 353.
- Phenyl-*p*-tolyl ketone** (WEILER), A., i, 490.
- Phenyl-*p*-tolylketosulphone**, and its hydrate (KOHLE and MACDONALD), A., i, 905.
- Phenyl-*p*-tolylmethane**, action of chromyl chloride on (WEILER), A., i, 519.
- Phenyl-*p*-tolylmethenylamidine**, preparation of (WHEELER and JOHNSON), A., i, 269.
- Phenyltolyl-3-methylantrone** (GUYOT), A., i, 295.
- e*-Phenyl- α -*o*-tolyl-*e*-methylthiobiuret**, and ***e*-Phenyl- α -*p*-tolylmethylthiobiuret** (DIXON), T., 402; P., 1899, 64.
- Phenyl-*p*-tolyl-oxybutylthiocarbamide** (SCHLINCK), A., i, 540.
- 1-Phenyl-3-*p*-tolylpyrazoline**, 5-imino- (SEIDEL), A., i, 139.
- Phenyl-*p*-tolylthiodiazolinethiol**, and methylic ether, ethylic ether, and benzylic ether (BUSCH and LINGENBRINK), A., i, 954.
- Phenyl-2-tolylthiosemicarbazides** (MARCKWALD), A., i, 504.
- Phenyl-4-tolylthiosemicarbazide**, and 2:4:5-tribromo-derivative (MARCKWALD), A., i, 504, 505.
- Phenyltolyl-*o*-toluic acid** (GUYOT), A., i, 294.
- Phenyltriazan** (VOSWINCKEL), A., i, 959.
- 1-Phenyltriazoline**, 3-imino-, and 2-nitroso-3-imino- (BAMBERGER and VON GOLDBERGER), A., i, 547.
- Phenyltriethylammonium bromide**, *o*-nitro- (NAGORNOFF), A., i, 425.
- β -Phenyl- γ -trimethacetobutyric acid**, electrical conductivity of (VON SCHILLING and VORLÄNDER), A., i, 879.
- Phenyltrimethylammonium bromide** (BISCHOFF and TARASCHTSCHANSKY), A., i, 202; (WEDEKIND), A., i, 352.
- N-Phenyltrimethyleneimine** and its picrate (SCHOLTZ), A., i, 881.
- 1-Phenylurazole**, action of phosphorus pentasulphide on (PELLIZZARI and FERRO), A., i, 550.
 nitroso- (RUPE and LABHARDT), A., i, 356.

- Phenylvaleric chloride**, action of aluminium chloride on (KIPPING and HALL), P., 1899, 173.
- α -Phenyl- β -m-xylylcarbamide** (MANUELLI and COMANDUCCI), A., i, 888.
- Phenyl-m-xylylhydrazine**, 2:4-dinitro- (WILLGERODT and KLEIN), A., i, 883.
- Phenyl-2-xylylketoxime-2-carboxylic acid**, oximidolactone of (BETHMANN), A., i, 520.
- Phenyl-2-xylylphthalazone** (BETHMANN), A., i, 520.
- Phenylxylylthiocarbamide**, 1-Phenyl-4-xylylthiosemicarbazine, 4-Phenyl-1-xylylthiosemicarbazine (BUSCH), A., i, 496, 497.
- Phenyl-2:4-xylylthiosemicarbazine**, the imidodiazolone and thiodiazolone (MARCKWALD), A., i, 504.
- Phenyl- and tolyl-3-thiobistriazoles and -3-thiotriazolones**, attempts at reduction of (ANDREOCCI and MANNINO), A., i, 946.
- Philipstadite** from Sweden (DALY), A., ii, 436.
- Phillipsite**, vapour pressure of (TAMMANN), A., ii, 8.
- Philothion** (DE REY-PAILHADE), A., i, 180.
- Phlobaphen** in grapes and grape seeds (GIRARD and LINDET), A., ii, 445; (SOSTEGNI), A., ii, 446.
- Phloracetophenone** diethylic and triethylic, trimethylic, and dimethylic ethers, and acetate of the last (KOSTANECKI and TAMBOR), A., i, 892.
- Phloridzin**, action of moulds on (PURIEWITSCH), A., ii, 683.
- physiological action of (CREMER), A., ii, 169.
- source of sugar excreted under the influence of (KUMAGAWA and MIURA), A., ii, 776.
- Phloridzin poisoning**, nature of (RAY, McDERMOTT, and LUSK), A., ii, 783.
- acetonuria in (GEELMUYDEN), A., ii, 235.
- Phloroglucide**, condensation product obtained from, with acetic acid (HERZIG), A., i, 32.
- Phloroglucinol** obtained from filicic acid (BOEHM), A., i, 32.
- condensation of, with benzoin (JAPP and MELDRUM), T., 1042; P., 1899, 166.
- triethylic ether, *d*-nitro- (JACKSON and KOCH), A., i, 677.
- Phloroglucinoltricarboxylic acid**, ethylic salt, from action of ethylic malonate on ethylic acetoneetricarboxylate, in presence of sodium ethoxide (WILLSTÄTTER), A., i, 577.
- Phorone**, action of ethylic sodiomalonate on (VORLÄNDER and GÄRTNER), A., i, 259.
- Phoronediacetic acid**, its methylic salt, oxime, and anhydride; also its oxidation (VORLÄNDER and GÄRTNER), A., i, 259.
- Phosgenite**. See Cromfordite.
- Phosphates**. See under Phosphorus.
- Phosphatic deposits** from caves in New South Wales (MINGAYE), A., ii, 670.
- Phosphines**, chloro-, of the aliphatic series (GUICHARD), A., i, 563.
- Phosphorescence** of strontium, barium, calcium, and zinc sulphides (MOURELO), A., ii, 420.
- of strontium sulphide, influence of manganese on (MOURELO), A., ii, 484.
- Phosphorised oil**, estimation of phosphorus in (EKROOS), A., ii, 180.
- Phosphorites**, manufacture of citrate soluble phosphoric acid from (KNOOP), A., ii, 801.
- Phosphorochalcite** from Belgium (CESÁRIO), A., ii, 433.
- Phosphorus**, spectrum of; detection of, in cast iron, by spectrum (GRAMMONT), A., ii, 345.
- melting point of, influence of pressure on (HULETT), A., ii, 469.
- metallic and red, identity of; red, vapour tension and vapour density of; white, vapour density of (CHAPMAN), T., 735; P., 1899, 102.
- red and yellow, entropic relations of, with arsenic, antimony, and bismuth (LINCK), A., ii, 416.
- action of aqueous alcoholic alkalis on (MICHAELIS and PITTSCH), A., ii, 285.
- action of, on hydrazine (DE BRUYN), A., ii, 745.
- poisoning by, the supposed formation of fat in (ATHANASIU), A., ii, 441.
- poisoning by, relation of, to phloridzin poisoning (RAY, McDERMOTT, and LUSK), A., ii, 783.
- organic, supposed presence of, in urine (OERTEL), A., ii, 116.
- nature of the compounds of, in urine (JOLLY), A., ii, 41.
- metabolism of proteids containing (ZADIK), A., ii, 774.
- Phosphorus pentabromide**, dissociation of, in carbon disulphide, carbon tetrachloride, or chloroform (KASTLE and BEATTY), A., ii, 481.
- trichloride, molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
- pentachloride, dissociation of (WEGSCHEIDER), A., ii, 590.
- lead iodide (MOSNIER), A., ii, 222.

Phosphorus suboxide, non-existence of (CHAPMAN and LIDBURY), T., 973; P., 1899, 186.

(MICHAELIS and PITTSCH), A., ii, 285.

Hypophosphorous acid, reduction of bismuth or antimony salts by, and palladium (ENGEL), A., ii, 750.

reduction of molybdic acid by (EBAUGH and SMITH), A., ii, 489.

Phosphoric acid, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.

surface tension of aqueous solutions of (FORCH), A., ii, 641.

etherification of, by methylic alcohol (BELUGOU), A., i, 659.

excretion of, before and after removal of the ovaries (SCHULZ and FALK), A., ii, 504.

estimation of (LASNE; NEUMANN), A., ii, 54; (ULSCH), A., ii, 802; (ASCHMAN), A., ii, 807.

estimation of citrate-soluble (MAERCKER), A., ii, 807.

estimation of citrate-soluble, in basic slags (FREUNDLICH), A., ii, 331.

estimation of total and soluble, in basic slag (DAFERT and REITMAIR), A., ii, 333.

estimation of, in malt (MATTHEWS and WOOLCOTT), A., ii, 174.

estimation of, in soils (MAXWELL), A., ii, 521.

estimation of, in superphosphates (LITTMANN), A., ii, 330.

estimation of, colorimetrically in water (JOLLES), A., ii, 579.

separation of selenium from (JANNASCH and HEIMANN), A., ii, 60.

See also Agricultural chemistry.

Phosphates, black, from the Pyrenees (LEVAT), A., ii, 229.

alkali, spark spectra of (DE GRAMONT), A., ii, 345.

action of hydrochloric acid on (TUNNELL and SMITH), A., ii, 744.

amount of, in the urine of infants (OECHSNER DE CONINCK), A., ii, 678.

Algerian, occurrence of chromic oxide in (SCHÜLER), A., ii, 335.

analysis of (ANTONY and MONDOLFO), A., ii, 330.

estimation of ferric oxide and alumina in (BLATTNER and BRASSEUR), A., ii, 128.

Superphosphates, estimation of citrate soluble phosphoric acid in (BÖTTCHER), A., ii, 55.

Phosphorus :—

Trimetaphosphoric acid, heat of neutralisation of (TANATAR), A., ii, 416.

Amidoheximidoheptaphosphoric acid (STOKES), A., ii, 94.

Amidotetrimidopentaphosphoric acid (STOKES), A., ii, 93.

Pentametaphosphimic acid, preparation of (STOKES), A., ii, 93.

Thiophosphates, spectra of (GRAMONT), A., ii, 345.

Phosphidic acid (CHRÉTIEN), A., ii, 362.

Phosphotungstic acid, preparation of (WINTERSTEIN), A., ii, 370.

Phosphorus, detection and estimation of :—

detection of, in insoluble substances by stereoelectrolysis (MAYENÇON), A., ii, 181.

microchemical detection of, in animal tissues (MACALLUM), A., ii, 232.

estimation of, in the free state (REED), A., ii, 451.

estimation of, in fats and oils (LOUISE), A., ii, 807.

estimation of, in iron ores (WETZKE), A., ii, 61.

estimation of, in nucleins (NEUMANN), A., i, 467.

estimation of, in phosphomolybdates (BREARLEY), A., ii, 337.

estimation of, in plants (BERTHELOT), A., ii, 330.

PHOTOCHEMISTRY :—

Actinometer, zinc sulphide (HENRY), A., ii, 394.

Light, chemical changes induced by (BERTHELOT), A., ii, 1, 2.

action of, on dibenzyl ketone (FORTEY), T., 871; P., 1899, 182.

action of, on nitrogen iodide (CHATTAWAY and ORTON), P., 1899, 18.

action of, on photographic plates (LIESEGANG), A., ii, 720.

action of, on platinum, gold, and silver chlorides (SONSTADT), P., 1898, 179.

action of, on silver iodide (SCHOLL), A., ii, 621.

Daguerreotype plates, development of (SCHOLL), A., ii, 621.

Photographic plates, action of light on, and development of (LIESEGANG), A., ii, 720.

action of hydrogen peroxide on (RUSSELL), A., ii, 720.

Radiations from carnotite (FRIEDEL and CUMENGE), A., ii, 435.

from uranium, radium, polonium, and thorium (BECQUEREL), A., ii, 393.

PHOTOCHEMISTRY:—

Röntgen rays, action of, on photographic plates (VILLARD), A., ii, 266.

ionisation of gases by (TOWNSEND), A., ii, 729.

photometer for; absorption of, by metallic salts (HÉBERT and REYNAUD), A., ii, 586.

Polarisation:—

Rotation, change of sign of, produced by substituting halogen for hydroxyl (WALDEN), A., ii, 539.

of electrolytes, influence of dilution and dissociation on (RIMBACH), A., ii, 345.

and molecular association of optically active liquids (POPE and PEACHEY), T., 1112; P., 1899, 201.

and position isomerism (GUYE and BABEL), A., ii, 718, 719.

of ethereal salts, maximum, and product of asymmetry (FRANKLAND), T., 351.

of a racemic compound of *d*- and *l*-, acetyldesmotroposantonin (ANDREOCCI), A., i, 931.

of amylic derivatives (BRJUCHONENKO), A., ii, 265.

of *l*-amylic salts (WALDEN), A., ii, 621.

of amylic nitro-, bromo-, and amino-benzoates, and *m*-toluate, and tartaryl, valeryl, and malyil anilides and toluidides (GUYE and BABEL), A., ii, 718.

of alanine, *d*- and *l*-, and benzoyl-, *d*- and *l*-benzoylaspartic and benzoylglutamic acids, and *d*-glutamic acid (FISCHER), A., i, 888.

of compounds formed by the condensation of benzaldehyde with polyhydric alcohols (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.

of bornylamine derivatives (FORSTER), T., 934; P., 1899, 71.

of compounds of camphor with aromatic aldehydes (HALLER and MÜLLER), A., ii, 622.

of *d*- and *l*-camphoroxime *d*-camphorsulphonates (POPE), T., 1006; P., 1899, 199.

of camphorsulphonic chlorides, and of *d*- and *l*-pinene, and of their solutions in alcohol (KIPPING and POPE), T., 1123; P., 1899, 200.

PHOTOCHEMISTRY:—

Rotation of dibenzylidene-*l*-idonic, dibenzylidene-*l*-xylonic, benzylidene-*d*-saccharic and benzylidene- α -glucoheptonic acids (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.

of dihydroxybutyric acid and *iso*-saccharin (FABER and TOLLENS), A., i, 855.

of *isodiphenylhydroxyethylamine*, *d*- and *l*-, and tartrates (ERLENMEYER), A., i, 882.

of butoxysuccinic, ethoxysuccinic, diethoxysuccinic acids and their salts (PURDIE and PITKEATHLY), T., 155, 158; P., 1898, 6.

of gallotannic acid (ROSENHEIM and SCHIDROWITZ), P., 1899, 67.

of *l*- and *d*-mandelic acid (MCKENZIE), T., 757, 768.

of *d*- and *l*-mandelic acid, and cinchonine salts (RIMBACH), A., i, 895.

of methoxy- and ethoxy-propionates (PURDIE and IRVINE), T., 483; P., 1899, 74.

of methylic and ethylic malates, benzoylmalates, and *o*-, *m*-, and *p*-toluoylmalates (FRANKLAND and WHARTON), T., 337; P., 1899, 25.

of *d*-methylmalic acid (MARCKWALD and AXELROD), A., i, 419.

of methyl-, ethyl-, and propyl-piperidines and of ethyl-, propyl-, and *iso*amyl-pipecolines (HOHENEMSER and WOLFFENSTEIN), A., i, 937.

of nitrocamphor and π -bromonitrocamphor, change of (LOWRY), T., 218; P., 25.

of *i*- α -phenethylamine hydrochloride and *d*-camphorsulphonate (POPE and HARVEY), T., 1110; P., 1899, 200.

of *d*- and *l*- α -phenylbenzylmethylallylammonium bromides, iodides, and *d*-camphorsulphonates (POPE and PEACHEY), T., 1128; P., 1899, 192.

of *l*-phenylethoxyacetic acid, and its salts (MCKENZIE), T., 758.

of *d*- and *l*-phenyllactic acids, α -bromo-, and cinchonine salts (ERLENMEYER and MOEBES), A., i, 896.

of phenylmethoxyacetic acid and salts (MCKENZIE), T., 762.

of phenylisopropoxyacetic acid, and its sodium and potassium salts (MCKENZIE), T., 765.

PHOTOCHEMISTRY :—

- Rotation** of *l*-pinene in various solvents (POPE and PEACHEY), T., 1118; P., 1899, 201.
- of pinene hydrochloride (LONG), A., i, 819.
- of piperidine bases, and of bornylamines, influence of introduction of benzoyl group on (POPE and PEACHEY), T., 1076.
- of sugar solutions (MASCART and BÉNARD), A., i, 851.
- of solutions of sucrose, influence of temperature on (WILEY), A., ii, 702.
- of tannin in aqueous, alcoholic, or acetic acid solution (FLAWITZKY), A., i, 806.
- of concentrated solutions of *d*-tartaric acid (LEPESCHKIN), A., i, 576.
- of tartaric acid solutions, and of turpentine oil (WENDELL), A., ii, 199.
- of *l*- and *d*-tetrahydroquinadine, their hydrochlorides, and *d*-camphorsulphonates (POPE and PEACHEY), T., 1067; P., 1899, 199.
- of tetrahydro-*p*-toluquinadine, *d*- and *l*-, and hydrochlorides (POPE and RICH), T., 1094.
- Mutarotation** of sugars, nitrocamphor, and π -bromonitrocamphor (LOWRY), T., 211; P., 25.
- Magnetic rotation** in salt solutions, effect of concentration on (OPPENHEIMER), A., ii, 139.
- Refraction** and dispersion of water (BENDER), A., ii, 621.
- and dispersion of compounds of camphor with aromatic aldehydes (HALLER and MULLER), A., ii, 622.
- of γ -amino- $\alpha\beta$ -propylenic glycol (L. and E. KNORR), A., i, 411.
- of amylic nitro-, bromo-, and aminobenzoates, and *m*-toluate (GUYE and BABEL), A., ii, 718.
- of argon, neon, and helium (RAMSAY and TRAVERS), A., ii, 746.
- of butyric, caproic, caprylic, capric, lauric, myristic, palmitic, and stearic acids, and their glycerylic salts (SCHEIJ), A., i, 668.
- of solutions of cadmium bromide, sugar, and *di*- and *tri*-chloroacetic acids, and their potassium salts (HALLWACHS), A., ii, 462.
- of coniine (POPE and PEACHEY), T., 1111.

PHOTOCHEMISTRY :—

- Refraction** of ethylic salts of methyl-substituted cyanosuccinic acids (BONE and SPRANKLING), T., 855.
- of ethylic glutaconate (HENRICH), A., i, 794.
- of solutions of hydrochloric acid and alkali chlorides (CONROY), A., ii, 717.
- of nitroamylbenzene, and of phenylmethylisopropylnitromethane (KONOWALOFF and EGOROFF), A., i, 801.
- of ω -nitrotoluene, ω -nitro-*p*-xylene, *p*-xylylamine, and ω -mesitylamine (KONOWALOFF), A., i, 873, 874.
- of phenylic alkylic carbonates (MOREL), A., i, 875.
- of *l*- and *i*-tetrahydroquinadines (POPE and PEACHEY), T., 1114.
- Atomic refraction** of iodine in some compounds (SULLIVAN), A., ii, 398.
- Refractometer**, double-trough (HALLWACHS), A., ii, 461.
- Dispersion**, anomalous, of sodium vapour (BECQUEREL), A., ii, 266.
- Spectroscopy**, interference, new method of (FABRY and PEROT), A., ii, 540.
- Spectra**, atomic and molecular, of compounds (DE GRAMONT), A., ii, 197.
- stellar, oxygen and unknown lines in (GILL), A., ii, 718.
- stellar, and temperature classification of stars (LOCKYER), A., ii, 718.
- of stars, of helium, and of asterium (LOCKYER), A., ii, 4.
- dissociation, of fused chlorides, bromides, and iodides (DE GRAMONT), A., ii, 137.
- of didymium oxide from monazite sands (URBAIN), A., ii, 425.
- of hydrogen (RICHARDS), A., ii, 266.
- compound line, of hydrogen (HUTTON), A., ii, 3.
- of electric arc between mercury poles in a vacuum (FABRY and PEROT), A., ii, 461.
- of neon and helium in high vacua obtained by freezing air (DEWAR), A., ii, 741.
- of sodium, method of reversing (KREUSLER), A., ii, 717.
- of sodium, lithium, and potassium in their fused salts; and of aluminium, tellurium, and selenium (DE GRAMONT), A., ii, 198, 199.
- spark, of fused sulphates, sulphides, and phosphates (DE GRAMONT), A., ii, 345.

PHOTOCHEMISTRY:—

- Spectra**, phosphorescent, of victorium (CROOKES), A., ii, 751.
 produced by electric discharges in organic compounds (WIEDEMANN and SCHMIDT), A., ii, 5.
 of chlorophyll and hæmoglobin derivatives (SCHUNCK), A., ii, 540.
 of cyanuric acid (HARTLEY), P., 1899, 46.
 of isatin and carbostyryl and their alkyl derivatives (HARTLEY and DOBBIE), T., 640; P., 1899, 47.
 of proteids in relation to that of tyrosine (BLYTH), T., 1162; P., 1899, 175.
- Photography**. See Photochemistry.
- Phthalamic acid**, methylic salt (HOOGWERFF and DORP), A., i, 870.
- m*- and *p*-**Phthalamidobenzoic acids**, ethylic salts (LIMPRICHT), A., i, 292.
- Phthalanil** (LANDSBERGER), A., i, 211; (MEYER and SUNDMACHER), A., i, 756.
- 3-nitro-, 4-nitro-, 4-chloro-, 3:4-dichloro-, and *tetrachloro*- (GRAEBE and BUENZOD), A., i, 762.
- Phthalanilic acid** (MEYER and SUNDMACHER), A., i, 756.
- Phthalazine**, salts, and 4'-chloro-derivatives (PAUL), A., i, 776.
- Phthalic acid**, equilibrium in formation of anhydride from (BANCROFT), A., ii, 411.
 citronellyl salt and *di*bromide of (FLATAU and LABBÉ), A., i, 409.
 ethylic salt, condensation of, with ethylic glutarate, and ethylic β -phenylglutarate (DIECKMANN), A., i, 914.
 geranyl salt, and *tetrabromide* of (FLATAU and LABBÉ), A., i, 409.
*isopropyl*ic salt (GUCCI), A., i, 513.
 thymylic hydrogen salt (SCHRIVER), T., 664; P., 121.
- Phthalic acid**, 3-nitro-, 4-nitro-, 4-chloro-, 3:4-dichloro-, and *tetrachloro*-, aniline salts (GRAEBE and BUENZOD), A., i, 762.
- 4-nitro-, formation of (HEUSLER and SCHIEFFER), A., i, 366.
- iso*-**Phthalic acid**, formation of (WEILER), A., i, 491.
- 5-nitro-, aniline salt (GRAEBE and BUENZOD), A., i, 763.
- p*-**Phthalic acid**. See Terephthalic acid.
- Phthalic anhydride**, condensation of, with benzaldehyde (THIELE), A., i, 216.
 condensation of, with *o*-tolylacetic acid (BETHMANN), A., i, 520.
- Phthalide**, 5-nitro-, formation of (GABRIEL and LANDSBERGER), A., i, 133.
*di*thio- (GABRIEL and LEUPOLD), A., i, 121.
- Phthalidedimethyl ketone** and its reaction with phenylhydrazine and with bromine (HAMBURGER), A., i, 142.
- Phthalidedimethylketoximes**, two isomeric, and an acetate (HAMBURGER), A., i, 143.
- Phthalimide**, formation of (MATHEWS), A., i, 57.
 oxidation of (OECHSNER DE CONINCK), A., i, 508.
 mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
- Phthalimidine**, constitution of (GABRIEL and LANDSBERGER), A., i, 133.
 thio- (GABRIEL and LEUPOLD), A., i, 121.
- ψ -**Phthalimidine**, 5-nitro-, and its salts (GABRIEL and LANDSBERGER), A., i, 133.
- Phthalimidebutylmalonic acid**, ethylic salt (GABRIEL and MAASS), A., i, 595.
- Phthalimidomethylenephénylhydrazine** (SACHS), A., i, 280.
- Phthalimidosulphonal** (POSNER), A., i, 604.
- Phthalophenylamic acid**, methylic salt, formation of (HOOGWERFF and VAN DORP), A., i, 870.
- Phthalophenylimide**, action of methylic alcohol on (HOOGWERFF and VAN DORP), A., i, 870.
- Phthalylcamphoroxime** (FRANKFORTER and GLASOE), A., i, 713.
- Phthalyl-green**, constitution of (HALLER and GUYOT), A., i, 155.
- m*- and *p*-**Phthalylxybenzoic acids**, ethylic salts (LIMPRICHT), A., i, 292.
- $\beta\beta$ -**Phthalylxydinaphthalene** (FOSSE), A., i, 817.
- Phthalylphenylisocrotonic acid**, two isomeric forms of (THIELE), A., i, 217.
- Phthalylphenylmethylenediamine** and **Phthalylpiperylmethylenediamine**, (SACHS), A., i, 280.
- Phthalylsalicylic acid** (LIMPRICHT), A., i, 293.
- Phyllotaonin**, relation of, to chlorophyll (KOHLE), A., i, 228.
- Phylloxanthin**, non-relation of, to chlorophyll (KOHLE), A., i, 228.
- Physcia pulverulenta* and *P. ciliaris*, constituents of (HESSE), A., i, 382.
- Physiological action of acids and alkalis** (LOEB), A., ii, 167; (ZOETHOUT), A., ii, 235.

- Physiological action** of aconine, aconitine, benzaconine, and diacetyl-aconitine (CASH and DUNSTAN), A., ii, 42.
- of *o*-aminophenetidine (COHN), A., ii, 781.
- of anhalonine, lophophorine, and mezcaline (DIXON), A., ii, 681.
- of aspirin (*acetylsalicylic acid*) (DRESE), A., ii, 605.
- of choline (ASHER and WOOD), A., ii, 373.
- of choline, eucaine-B, and neurine (MOTT and HALLIBURTON), A., ii, 315, 781.
- of extracts of pituitary body (SCHÄFER and VINCENT), A., ii, 782.
- of hederin (JOANIN), A., ii, 605.
- of hydrogen peroxide and benzoic peroxide (NENCKI and ZALESKI), A., ii, 676.
- of iodine and iodides (HEINZ), A., ii, 440.
- of diiodoacetylidenes (LOEW), A., ii, 169.
- of various ketonic bases and their oximes (SCHMIDT), A., i, 4.
- of laurotetanine (FILIPPO), A., i, 312.
- of methylxanthines (LUSINI), A., ii, 317.
- of nitrogen chloride (HENTSCHEL), A., ii, 569.
- of peptones and proteoses (CHITTENDEN, MENDEL, and HENDERSON), A., ii, 233; (THOMPSON), A., ii, 677.
- of phloridzin (CREMER), A., ii, 169.
- of proteose (THOMPSON), A., ii, 604.
- of sodium fluoride (BALDWIN), A., ii, 605.
- of extracts of sympathetic ganglia (CLEGHORN), A., ii, 569.
- Physiology**, importance of stereochemistry in (FISCHER), A., ii, 169.
- Phytosterol** (*phytosterin*) presence of, in lichens (HESSE), A., i, 382.
- from the oil of *Tropaeolum majus* (GADAMER), A., i, 864.
- preparation of (BÖMER), A., ii, 191.
- extraction of, from fats (JUCKENACK and HILGER), A., i, 38.
- detection of, in fats (KREIS and WOLF), A., ii, 343; (WIRTHLE; FOERSTER), A., ii, 824.
- Picea excelsa* seeds, constituents of, and decomposition of the proteids in (RONGGER), A., ii, 241.
- Pichi-pichi**, constituents of (KUNZ-KRAUSE), A., i, 448.
- Picoline**, haloid and perhaloid salts of (MURRILL), A., i, 934.
- α -Picoline** (*2-methylpyridine*) aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
- hydrochloride, methobromide, ethobromide, hydrogen dibromide, hydrogen tribromide, methyl tribromide, ethyl tribromide, hydriodide bromide, hydrogen diiodide, triiodide, pentioidide, methyl triiodide, methyl pentioidide, heptioidide, ethyl triiodide, ethyl pentioidide, propyl triiodide, hydriodide dibromide, methioidide dibromide, methioidide iodobromide, allyliodide dibromide, methioidide, ethioidide, propioidide, isopropioidide, butioidide, isobutioidide, secbutioidide, isoamyl ioidide, allyliodide, secbutyl triiodide, secbutyl pentioidide, isoamyl diiodide, isoamyl triiodide, isoamyl pentioidide, allyl triiodide, allyl pentioidide, ethyl propyl pentioidide, isopropyl diiodide, isopropyl triiodide, isopropyl pentioidide, butyl triiodide, butyl pentioidide, isobutyl triiodide, and isobutyl pentioidide of (MURRILL), A., i, 934, 935.
- β -Picoline** (*3-methylpyridine*), methyl triiodide, methyl pentioidide (MURRILL), A., i, 934.
- γ -Picoline** (*4-methylpyridine*), methyl triiodide, methyl pentioidide, heptioidide (MURRILL), A., i, 934.
- α - and β -Picolines**, action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
- Picramic acid** (*4 : 6-dinitro-2-amino-phenol*), oxidation of, with chromic acid (OECHSNER DE CONINCK and COMBE), A., i, 347.
- Picric acid** (*2 : 4 : 6-trinitrophenol*), velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- equilibrium between β -naphthol, ethylenic bromide, and (BRUNI), A., ii, 406.
- oxidation of, with chromic acid (OECHSNER DE CONINCK and COMBE), A., i, 347.
- Picrotin**, and benzoyl-, dibenzoyl-, acetyl-, diacetyl-, anhydriodacetyl-, and anhydronitro-derivatives (MEYER and BRUGER), A., i, 227.
- Picrotoxic acid**, and bromo-derivative (MEYER and BRUGER), A., i, 227.
- Picrotoxide** (MEYER and BRUGER), A., i, 226.
- Picrotoxin**, resolution of, into picrotoxinin and picrotin (MEYER and BRUGER), A., i, 226.
- detection of (MELZER), A., ii, 193; (KREIS), A., ii, 827.

- Picrotoxinin**, and its chloro-, bromo-, iodo-, and diacetyl derivatives and polymeric form (MEYER and BRUGER), A., i, 226.
- Picrylazo-*m*-xylene** (WILLGERODT and KLEIN), A., i, 883.
- Picrylguaiacol**. See Guaiacol picrate.
- Picryl-*m*-xylylhydrazine** (WILLGERODT and KLEIN), A., i, 882.
- Pigment**, $C_{18}H_{11}O_{10}N_5$, from oxidation of melanin (JONES), A., i, 396.
production of, by action of *Bacillus coli* on artichokes (ROUX), A., i, 444.
- Pigments**, ferruginous, examination of (BAMKE), A., ii, 129.
fluorescent, production of, by bacteria (JORDAN), A., i, 318.
- Pilandite** from the Transvaal (HENDERSON), A., ii, 111.
- n*-**Pinelic acid**, formation of, by action of trimethylene dibromide on ethylic sodiocyanacetate (CARPENTER and PERKIN), T., 933; P., 1899, 135.
formation of, in the oxidation of fats, and its separation (BOUVEAULT), A., i, 480.
- Pinacolin** (*methyl tertbutyl ketone*), heat of combustion of (ZOUBOFF), A., ii, 589.
dibromo- (KONDAKOFF), A., i, 859.
- Pinacolinoxime** and its reduction (MARKOWNIKOFF), A., i, 554.
- Pinacone**, action of hydrobromic acid on (KONDAKOFF), A., i, 859.
- Pinene**, in oil of rosemary (SCHIMMEL and Co.), A., i, 63.
behaviour of, towards formaldehyde (KRIEWITZ), A., i, 298.
hydrochloride, rotatory power (LONG), A., i, 819.
chlorhydrin (GINZBERG and WAGNER), A., i, 618.
chlorhydrins, constitution of (GINZBERG), A., i, 619.
- l*-**Pinene**, in oils of hemlock and spruce (SCHIMMEL and Co.), A., i, 63.
presence of, in essential oil of oleoresin from *Dacryodes hexandra* (MORE), T., 718; P., 1899, 150.
rotatory power of, and in various solvents (POPE and PEACHEY), T., 1118; P., 1899, 201.
- d*- and *l*-**Pinene**, and solutions of, in methylic and ethylic alcohols, equilibrium between, and rotatory powers of (KIPPING and POPE), T., 1123; P., 1899, 200.
- Pine-wood sawdust**, action of nitric acid on (FABER and TOLLENS), A., i, 854.
- Pinole chlorhydrin** (GINZBERG), A., i, 618.
- Pinole tetrabromide** (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
bisnitrosochloride and isonitrosochloride (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
- cis*-**Pinole oxide** (WAGNER and SLAWINSKI), A., i, 766.
- iso*-**Pinole dibromide** (WALLACH, STIEHL, and SIEVERTS), A., i, 709.
- Pinolglycol** from pinol; diacetyl derivative, mono- and di-urethanes (SLAWINSKI), A., i, 529.
from dibromopinol, diacetyl derivative (SLAWINSKI), A., i, 529.
anhydride (GINZBERG), A., i, 619.
- d-cis*trans-**Pinolglycol** (WAGNER and SLAWINSKI), A., i, 767.
- Pinolol** (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
- Pinolone**, semicarbazone, oxime, carbamide derivative (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
- Pinonic acids**, crystallographic relations of (FOCK), A., i, 819.
- Pinus cembra* seeds, constituents of (SCHULZE and RONGGER), A., ii, 241.
- Pinus sylvestris*, amount of lignin in wood of (CIESLAR), A., ii, 447.
- Piperazine**, diurethane of; α - and β -naphthyllic diurethane of; guaiacol derivative of (CAZENEUVE and MOREAU), A., i, 167.
- Piperic acid**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
- Piperidine** (*hexahydropyridine*), formation of, from amylamine, by silent electric discharge (BERTHELOT), A., ii, 653.
specific heat and heat of vaporisation of (LUGNIN), A., ii, 354.
action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.
action of, on ethylic acetylenedicarbonylate (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
action of nitrosyl chloride on (SOLOMINA), A., i, 473.
condensation of, with $\alpha\delta$ -dibromopentane (SCHOLTZ and FRIEMEHLT), A., i, 541.
hydrobromide (BISCHOFF and MAISEL), A., i, 230; (WEDEKIND), A., i, 636.
perchromate (WIEDE), A., i, 245.
dithiocarbamate, from action of carbon disulphide on δ -aminovaleraldehyde (MAASS and WOLFFENSTEIN), A., i, 110.
- Piperidine**, cyano-, and action of ammonia and hydrogen sulphide on (WALLACH), A., i, 659.

- Piperidine-bases**, rotatory power of, influence of introduction of benzoyl group on (POPE and PEACHEY), T., 1076.
- Piperidine-series**, stereochemistry of (HOHENEMSER and WOLFFENSTEIN), A., i, 936.
- Piperidinemethoxyphenylurethane**, **Piperidine- α - and β -naphthylurethanes**, **Piperidinephenylurethane** (CAZENEUVE and MOREAU), A., i, 132, 133.
- Piperidylacetaldehyde**, and its hydrochloride, and salts (STOERMER), A., i, 73.
- Piperidylacetic acid**, and ethylic salt (BISCHOFF and STEFANOWSKI), A., i, 229.
benzoyl-bromide and -iodide, ethylic salts of (WEDEKIND), A., i, 352.
- Piperidylacetoxime** (MATTHAIPOULOS), A., i, 10.
- α -Piperidylbutyric acid**, and ethylic salt (BISCHOFF and KUSZEL), A., i, 230.
- Piperidylcarbinol**, condensation of, with bromonitromethane (MAAS), A., i, 322.
- γ -Piperidyl dimethylacetoacetic acid**, methylic salt, from action of piperidine on methylic γ -cyanodimethylacetoacetate (CONRAD and GAST), A., i, 258.
- Piperidylmaleic acid**, ethylic salt (RUHEMANN and CUNNINGTON), T., 956; P., 1899, 185.
- α -Piperidylpropionic acid** and ethylic salt (BISCHOFF and MAISEL), A., i, 230.
- Piperidylthiocarbamide**, formation of (WALLACH), A., i, 659.
- α -Piperidylisovaleric acid**, and ethylic salt (BISCHOFF and PARIS), A., i, 230.
- Piperil** and its acetate, oximes and α - and β -osazones (BILTZ and WIENANDS), A., i, 911.
- Piparine**, viscosity of undercooled (TAMMANN), A., ii, 272.
action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 201.
- Piperonalcoumaranone** (FEUERSTEIN and KOSTANECKI), A., i, 369.
- Piperonal dimer** hydrochloride (BUSCH and WOLFF), A., i, 951.
- Piperonal-2'-hydroxyacetophenone** and acetyl derivative and dibromide (FEUERSTEIN and VON KOSTANECKI), A., i, 369.
- Piperonalpaeonol**, and acetyl derivative and dibromide (EMILEWICZ and VON KOSTANECKI), A., i, 369.
- Piperonylidencamphor** (HALLER), A., i, 770.
- Piperonylidenediacetoacetic acid**, ethylic salt and oxime (KNOEVENAGEL and HOFFMANN), A., i, 214.
- Piperonylidenemalonic acid** (KNOEVENAGEL), A., i, 145.
ethylic salt (KNOEVENAGEL and GIESE), A., i, 117.
- 3-Piperonyl-1-methyl-5-cyclohexenone**, and oxime (KNOEVENAGEL and HOFFMANN), A., i, 214.
- 3-Piperonyl-1-methyl-5-cyclohexenone-2:4-dicarboxylic acid**, ethylic salt of (KNOEVENAGEL and HOFFMANN), A., i, 214.
- Pituitary body**, physiological action of extracts of (SCHÄFER and VINCENT), A., ii, 782.
extract, effects of, on blood pressure (SCHÄFER and VINCENT), A., ii, 441.
- Pitticite** from Moravia (KOVÁŘ), A., ii, 672.
- Plagioclase**, alteration of (BARLOW), A., ii, 565.
- Placodium saxicolum*, constituents of (HESSE), A., i, 382.
- Plagionite**, artificial (SOMMERLAD), A., ii, 218.
from the Harz (SPENCER and PRIOR), A., ii, 431.
- Plants**, estimation of chlorine in (BERTHELOT), A., ii, 327.
estimation of sulphur and phosphorus in (BERTHELOT), A., ii, 330.
See also Agricultural chemistry.
- Platinum** in meteoric iron (DAVISON), A., ii, 308.
commercial, purity of (MYLIUS and DIETZ), A., ii, 160.
free from iridium, preparation of (BERGSÖE), A., i, 299, 320.
dissolution of, in electrolytes (MARGUELES), A., ii, 200.
gauze electrodes, electrolytic precipitation of metals on (WINKLER), A., ii, 723.
absorption of gases by, at low temperatures; and existence of a compound of, with hydrogen (HEMPINNE), A., ii, 146.
sponge, occlusion of gases by (HEMPINNE), A., ii, 228.
action of, on sulphuric acid (ADIE), P., 1899, 133.
- Platinum alloys** with calcium (TARUGI), A., ii, 749.
- Platinum salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
reduction of, by calcium carbide (TARUGI), A., ii, 749.
- Platinooximide** potassium salt (CURTIUS and RISSOM), A., ii, 92.

- Platinum tetrachloride**, electrolysis of solutions of (DITTENBERGER and DIETZ), A., ii, 629.
 hydrated, electrolysis and constitution of (HITTOFF and SALKOWSKI), A., ii, 398.
 action of solution of, on antimony trioxide (HARDING), A., ii, 490.
 influence of, on the reaction between potassium permanganate and hydrochloric acid (WAGNER), A., i, 275.
- Platinum organic compounds** :
 double oxalate and chloride of, with potassium (VÉZES), A., i, 572.
 Platino-oxalates ; Dichloroplatinio-oxalates and Platinoplatinio-oxalates (WERNER and GREBE), A., i, 865.
 Platino-oxalonitrous acid, potassium salt (VÉZES), A., i, 671, 741.
 Dipropylenediamineplatinous hydroxide and salts ; Dipropylenediamineplatinic chloride, and dichloro- and dibromo-derivatives ; Propylenediaminediamineplatinous chloride, and dibromo-derivative ; Propylenediamineplatinum, di- and tetrachloro- (WERNER, MEGERLE, PASTOR, and SFRUCK), A., i, 857, 858.
- Platinum, estimation and separation of** :—
 best precipitants for (ATTERBERG), A., ii, 125.
 estimation of, volumetrically (PETERSON), A., ii, 253.
 estimation of silver, gold, and mercury in presence of (KOLLOCK), A., ii, 811.
 separation of gold from (VANINO and SEEMANN), A., ii, 579.
- Platinum metals**, detection of (MYLIUS and DIETZ), A., ii, 161.
- Platysma diffusum*, and *P. glaucum*, constituents of (ZOFF), A., i, 716, 717.
- Plumieride and Plumieric acid** (FRANCHIMONT), A., i, 933, 934.
- Pneumonia**, excretion of chlorides in (HUTCHISON), A., ii, 168.
- Poirrier's blue**, C_4B , use of, in alkalimetry (GLASER), A., ii, 573.
- Polarisation**. See Photochemistry.
- Polonium** in carnotite (FRIEDEL and CUMENGE), A., ii, 435.
 radiation from (BECQUEREL), A., ii, 393.
- Polyargyrite**, artificial (SOMMERLAD), A., ii, 216.
- Polyaspartic acids** (SCHIFF), A., i, 195.
- Polyporus officinalis*, the fungose of, and yield of chitin from (TANRET), A., ii, 171.
- Polysaccharides**, hydrolysis of, by yeast enzymes (KALANTHAR), A., i, 102.
- Polystichalbin, Polystichic acid, Polystichin, Polystichinin, Polystichinol, Polystichocitrin, and Polystichoflavin** (POULSSON), A., i, 379.
- Polystichum spinulosum*, constituents of extract of root of (POULSSON), A., i, 379.
- Pomegranate**, alkaloids of (PICCININI), A., i, 829 ; (GORDIN and PRESCOTT), A., i, 964 ; (PICCININI and QUATAROLI), A., i, 965.
 composition of juice of, and amount of alcohol in the wine made from (BORNTRÄGER and PARIS), A., ii, 447.
 bark, estimation of alkaloids in (EWERS), A., ii, 457.
- Porcelain**, Egyptian, composition of (LE CHATELIER), A., ii, 751.
- Portland cement**, constitution of (REBUFFAT), A., ii, 289.
 estimation of silica and insoluble residue in (SHIMER), A., ii, 520.
- Portugal**, oil of, composition of (FLATAU and LABBÉ), A., i, 442.
- Posidonia caulinii*, amount of ash and cellulose in (CHANCEL), A., ii, 682.
- Potash**. See Potassium hydroxide, and also Agricultural chemistry.
- Potash bulbs**, new form of (ANDERSON), A., ii, 577.
- Potassium**, spectrum of, in its fused salts (GRAMONT), A., ii, 198.
 ion, velocity of, in flames (WILSON), A., ii, 723.
- Potassium amalgams** (DIVERS), T., 103 ; (POCKLINGTON), A., ii, 200 ; (MAEY), A., ii, 547.
- Potassium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., i, 586.
 conductivity of mixed solutions of sodium salts and (BARMWATER), A., ii, 396.
 taste of (HÖBER and KIESOW), A., ii, 207.
- Potassium amidochromate** (OHLY), A., ii, 754.
 ammonia (MOISSAN), A., ii, 152.
 antimonates (SENDERENS), A., ii, 557.
 thioantimonite, and double salts with zinc, manganese, lead, or copper ; action of, on mercuric chloride (POUGET), A., ii, 663.
 azoimide, cobaltoazoimide, and platino-azoimide (CURTIUS and RISSOM), A., ii, 92.
 bismuthate, preparation of (DEICHLER), A., ii, 429.
 action of hydrofluoric acid on (WEINLAND and LAUENSTEIN), A., ii, 370.

Potassium bromate, preparation of (MÜLLER), A., ii, 742.
 action of hydrofluoric acid on (WEINLAND and LAUENSTEIN), A., ii, 364.
bromide, spark spectrum of (DE GRAMONT), A., ii, 137.
 fluidity and conductivity of (DENNHARDT), A., ii, 351.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 precipitation of, from acetone (ROHLAND), A., ii, 144.
 action of chlorine on (KÜSTER), A., ii, 22.
cupric bromide (KURNAKOFF and SEMENTSCHENKO), A., ii, 287.
carbide, formation of (MOISSAN), A., i, 241.
carbonate, thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 equilibrium between methylic or ethylic alcohols, water, and (DE BRUYN), A., ii, 591.
 equilibrium between water, alcohol, and (SNELL), A., ii, 408.
 reduction of, by aluminium (FRANCK), A., ii, 102.
perceric carbonate (JOB), A., ii, 487.
chlorate, preparation of (MÜLLER), A., ii, 742.
 electrolytic production of (VAUBEL), A., ii, 88.
 application of principle of maximum work to electrolysis of solutions of (TOMMASI), A., ii, 413.
 solubility of, in water at different temperatures (PAWLEWSKI), A., ii, 405.
 use of, in ammonium nitrate explosives (LE CHATELIER), A., ii, 647.
perchlorate, electrolytic preparation of (FOERSTER), A., ii, 88; (WINTZLER), A., ii, 366.
chloride, molecular refraction of solutions of (HALLWACHS), A., ii, 462.
 spark spectrum of (DE GRAMONT), A., ii, 137.
 concentration cell, with water and methylic or ethylic alcohols (SALVADORI), A., ii, 721.
 fluidity and conductivity of (DENNHARDT), A., ii, 351.
 conductivity of solutions of, in nitrobenzene, benzonitrile, or furfuran (EULER), A., ii, 462.
 electrolysis of aqueous solutions of (BISCHOFF and FOERSTER), A., ii, 89.

Potassium chloride, depression of freezing point of water by (RAOULT), A., ii, 204.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 surface tension of solutions of (LINEBARGER), A., ii, 469.
 contraction of aqueous solutions of, on dilution (WADE), T., 268; P., 1899, 8.
 densities and refractive indices of solutions of (CONROY), A., ii, 717.
 densities of aqueous solutions of (BARNES and SCOTT), A., ii, 406; (DE COPPET), A., ii, 590.
 solubilities of mixtures of, with sodium chloride or nitrate and potassium nitrate (SOCH), A., ii, 84.
 equilibrium between sodium sulphate, sodium potassium sulphate, and (MEYERHOFFER and SAUNDERS), A., ii, 410.
 equilibrium between water, acetone, and (SNELL), A., ii, 407.
 precipitation of, from acetone (ROHLAND), A., ii, 144.
 and ammonium chlorides, conductivities of mixed solutions of (JONES and KNIGHT), A., ii, 628.
cerium hexachloride (KOPPEL), A., ii, 98.
cupric chlorides (KURNAKOFF and SEMENTSCHENKO), A., ii, 287; (GRÖGER), A., ii, 289.
 magnesium chloride and cadmium bromide (JONES and KNIGHT), A., ii, 628.
 osmium chloride, and bromide (ROSENHEIM and SASSERATH), A., ii, 665.
 uranium chlorides and bromides (ALOY), A., ii, 555.
 double chlorides of, with zinc and cadmium, conductivities of aqueous solutions of (JONES and OTA), A., ii, 587.
perchromate, crystalline, formation of (WIEDE), A., i, 320.
difluoriodate (WEINLAND and LAUENSTEIN), A., ii, 363.
fluoromanganite (WEINLAND and LAUENSTEIN), A., ii, 368.
monofluorophosphate, *difluorotellurate*, and *difluorodithionate* (WEINLAND and ALFA), A., ii, 595.
difluorodisulphate and *difluorodiselenate* (WEINLAND and ALFA), A., ii, 595.
fluorouranate, *fluoromolybdate*, and *fluorotungstate*, conductivity of (MIOLATI and ALVISI), A., ii, 350.

- Potassium** hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 or dichromate, influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.
 iodate, preparation of (MÜLLER), A., ii, 742.
 manganic iodate (BERG), A., ii, 426.
 iodide, spark spectrum of (DE GRAMONT), A., ii, 137.
 fluidity and conductivity of (DENNHARDT), A., ii, 351.
 conductivity of solutions of, in nitrobenzene, benzonitrile, or furfuran (EULER), A., ii, 462.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 influence of, on the boiling point of liquid ammonia (FRANKLIN and KRAUS), A., ii, 202.
 action of bromates, chromates, dichromates, and di-iodates on (WAGNER), A., ii, 326.
 action of chlorine on (KÜSTER), A., ii, 22.
 action of, on mercurous iodide (FRANÇOIS), A., ii, 751.
permanganate, action of hydrochloric acid on, in presence of catalytic agents (WAGNER), A., ii, 275.
mercuriodide, action of water on (FRANÇOIS), A., ii, 598.
molybdate, chromate, and dichromate, influence of, on the oxidation of iodide by bromic acid (SCHILOFF), A., ii, 147.
peroxide permolybdate, preparation of (MELIKOFF and PISSARJEWSKY), A., ii, 31.
perniobate, and *pertantalate* and calcium double salt (MELIKOFF and PISSARJEWSKY), A., ii, 491.
 nitrate, fused, luminous phenomena produced by ammonium salt and (TOMMASI), A., ii, 483.
 fluidity and conductivity of (DENNHARDT), A., ii, 351.
 mixtures of, with lithium and sodium nitrates, melting points of (CARVETH), A., ii, 141.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 densities of solutions of (BARNES and SCOTT), A., ii, 406.
 solubilities of mixtures of, with potassium chloride and sodium chloride or nitrate (SOCH), A., ii, 84.
 and thallium chloride, solubility of mixtures of (NOYES), A., ii, 10.
- Potassium** nitrate, equilibrium between water, alcohol, and, temperatures at which two liquid phases appear in (DODGE and GRATTON), A., ii, 408.
 deliquescence of (KORTRIGHT), A., ii, 644.
 action of dilute sulphuric, hydrochloric, and phosphoric acids on, in presence of ether (TANRET), A., ii, 21.
 and nitrite, electrolytic reduction of; chlorate and arsenite, electrolytic oxidation of (TOMMASI), A., ii, 138.
 nitrite, preparation of (DIVERS), T., 85; P., 1898, 222.
 reduction of, by potassium amalgam (DIVERS), T., 90; P., 1898, 223.
 ruthenium nitrite (BRIZARD), A., ii, 664.
 rhodium nitrite, and *hexarhodite* (JOLY and LEIDIE), A., ii, 34.
 hyponitrite, preparation of (DIVERS), T., 102; P., 1898, 224.
 preparation of, from sodium nitrite (DIVERS and HAGA), T., 80; P., 1898, 221.
osmiatate (BRIZARD), A., ii, 559.
 oxide, heat of formation of (MOISSAN), A., ii, 352.
 heats of formation and solution of (DE FORCRAND), A., ii, 588.
 phosphate. See Agricultural chemistry.
 phosphidate, molybdiolate, and tungstidate (CHRÉTIEN), A., ii, 363.
 platinochloride, action of light on solutions of (SONSTADT), P., 1898, 179.
 platosochloride (VÈZES), A., ii, 492, 572.
 ruthenate (MYLIUS and DIETZ), A., ii, 160.
 ruthenichloride (ANTONY and LUCCHESI), A., ii, 756.
 ruthenochloride; chloronitrosoruthenate, action of sulphur dioxide on (ANTONY and LUCCHESI), A., ii, 558.
 selenibromide (LENHER), A., ii, 19.
 selenide and polyselenide (HUGOT), A., ii, 650.
 silicate, hydrolysis of, in aqueous solution (KAHLENBERG and LINCOLN), A., ii, 95.
 silicofluoride, fluoroxysulfate, fluoroxymolybdate, action of oxalic acid on (PATERNO and ALVISI), A., ii, 18.
 sulphate, electrolysis of, with copper ferrocyanide membrane (SCHREBER), A., ii, 273.

Potassium sulphate crystals, thermal expansion of (TUTTON), A., ii, 630.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 densities of solutions of (BARNES and SCOTT), A., ii, 406.
 antimony sulphate (GUTMANN), A., ii, 33.
 copper sulphate, conductivity of solutions of (MACGREGOR and ARCHIBALD), A., ii, 201.
 iron alum (HOWE and O'NEAL), A., ii, 103.
 ferrous sulphate, hydrates of, and their solubilities and transition temperatures (KÜSTER and THIEL), A., ii, 753.
 praseodymium sulphate and selenate (SCHEELE), A., ii, 99.
 sodium sulphate (MEYERHOFFER and SAUNDERS), A., ii, 410.
 vanadium sulphate (PICCINI), A., ii, 297.
 persulphate, action of potassium iodide on, catalysis in; molecular formula of (PRICE), A., ii, 147.
 sulphite, absorption of nitric oxide by solutions of (DIVERS), T., 82; P., 1898, 221.
 sulphonosmate, and osmisulphites (ROSENHEIM and SASSERATH), A., ii, 665, 666.
 tellurides and sulphides, by action of potassammonium on tellurium and sulphur (HUGOT), A., ii, 747.
 paratungstate, action of hydrogen on; tungstate, compound of, with tungsten *di*- and *tri*-oxides (HALLOPEAU), A., ii, 32.
 magnesium, manganese, zinc, and cadmium paratungstates (HALLOPEAU), A., ii, 159, 160.
 hexatungstoperiodate (ROSENHEIM and LIEBKNECHT), A., ii, 744.
 tungsto-tungstate (HALLOPEAU), A., ii, 555.
 pyropervanadate and *pervanadate* (MELIKOFF and PISSARJEWSKY), A., ii, 298.
Potassium organic compounds :—
 acetylide (MOISSAN), A., i, 241.
 cuprotartrate, and its electrolysis (MASSON and STEELE), T., 725; P., 1899, 120.
 carbonylferrocyanide, synthesis of (MULLER), A., i, 728.
 cyanide, heat evolved on mixing solutions of, with solutions of phenol, hydrochloric acid, nitric acid, acetic acid, hydrogen sulphide, or boric acid (BERTHELOT), A., ii, 737.

Potassium organic compounds :—
 cyanide, stability of, towards alkalis, relative to that of acetonitrile (FISCHER), A., i, 262.
 compound of, with chromium tetroxide (WIEDE), A., i, 319.
 condensing action of, on aldehydes and on mixtures of aldehydes and ketones (CLAISEN), A., i, 667.
 mercuric and potassium zinc cyanides, action of hydrogen sulphide or sodium sulphide on (BERTHELOT), A., ii, 422.
 silver cyanide, and its decomposition (BERTHELOT), A., i, 846.
 action of hydrogen sulphide or sodium sulphide on solutions of (BERTHELOT), A., ii, 421.
 zinc cyanide, and its decomposition (BERTHELOT), A., i, 847.
 β -ferricyanide, formation of, by the action of acids on the normal ferricyanide (LOCKE and EDWARDS), A., i, 407, 557.
 ferrocyanide, comparison of its solubility with that of sodium ferrocyanide (CONROY), A., i, 2.
 contraction of aqueous solutions of, on diluting (WADE), T., 271; P., 1899, 8.
 action of carbonic anhydride on (GIGLI), A., ii, 387.
 action of dilute acids on (AUTENRIETH), A., ii, 387.
 vanadium thiocyanate (CIOCI), A., i, 321.
 pallado-oxalate (VÉZES), A., i, 672.
 platoso-oxalate (VÉZES), A., i, 572.
 platoso-oxalonitrite (VÉZES), A., i, 671, 741.
Potassium, detection and estimation of :—
 detection of, in silicates (COLE), A., ii, 521.
 estimation of (DIAMANT), A., ii, 57; (ATTERBERG), A., ii, 125; (BELL), A., ii, 809.
 estimation of, as *perchlorate* (SHIVER), A., ii, 521.
 estimation of, as *platinochloride* (BOLM), A., ii, 695.
 estimation of, in fertilisers (EGGERTZ and NILSON), A., ii, 384.
 estimation of, in rocks (BONJEAN), A., ii, 695.
 estimation of, in soils (MAXWELL), A., ii, 521.
 estimation of, in urine (HERRINGHAM), A., ii, 333.
Potatoes. See *Agricultural chemistry*.
Potential. See *Electrochemistry*.
Pottery, Egyptian, composition of (LE CHATELIER), A., ii, 752.

- Poudrette.** See Agricultural chemistry.
- Powellite** from Michigan (PALACHE), A., ii, 495.
- Praseodymium**, atomic weight of (JONES), A., ii, 292.
- bands, in spectrum of didymium from monazite sands (URBAIN), A., ii, 425.
- Praseodymium** chloride, bromide, nitrate, sulphate, selenate acid selenite, carbonate, dithionate, platinochloride, platinobromide, platino-cyanide, aurichloride, and auribromide, sodium and ammonium nitrates, potassium and ammonium sulphates, and potassium selenate (SCHEELE), A., ii, 99, 100.
- oxide, complex oxides containing (WYROUBOFF and VERNEUIL), A., ii, 424.
- Praseodymium**, separation of neodmium from (SCHEELE), A., ii, 291.
- Pregnancy**, effects of inanition during (CHARRIN and GUILLEMONAT), A., ii, 733.
- Prehnite**, vapour pressure of (TAMMANN), A., ii, 8.
- Prehniticarboxylic acid**, synthesis of (GATTERMANN and PRENTICE), A., i, 510.
- Presidential Address** (DEWAR), T., 1167; P., 1899, 77.
- Presidents, Past**, banquet to, P., 1899, 189.
- Pressure**, apparatus for reactions under high (HITE), A., i, 592.
- Principle of minimum work** (TOMMASI), A., ii, 413.
- Propaldehyde**, action of hydrogen cyanide on (HENRY), A., i, 182.
- dibromo- (acetaldehyde dibromide)*, action of water on (DE BRUYN), A., i, 110.
- nitro-, phenylhydrazone (*phenylnitroazopropane*) and its hydrolysis (BAMBERGER), A., i, 108.
- Propane**, from the decomposition of hexane by aluminium chloride, and solubility in amylalcohol (FRIEDEL and GORGEU), A., i, 181.
- ratio of specific heats for (DANIEL and PIERRON), A., ii, 725.
- Propane, $\alpha\beta$ -dibromo-**. See Propylenic bromide.
- $\alpha\alpha\beta$ -tribromo-*, from action of bromine on *$\alpha\beta$ -propylenic bromide* in presence of aluminium bromide, and the action of bromine on it (MOUNEYRAT), A., i, 555.
- $\alpha\beta\gamma$ -tribromo-* (*tribromhydrin*) and *$\alpha\alpha\beta$ -tribromo-*, from action of bromine on propylenic bromide in presence of aluminium bromide (MOUNEYRAT), A., i, 97, 555.
- Propane, $\alpha\alpha\beta\gamma$ -tetrabromo-** (MOUNEYRAT), A., i, 97, 556.
- $\alpha\alpha\gamma\gamma$ -tetrabromo-*, from action of bromine on hydrocarbon, C_3H_4 (FREUNDLER), A., i, 98.
- $\alpha\alpha\beta\gamma\gamma$ -pentabromo-* (MOUNEYRAT), A., i, 97, 556.
- dichloro-*. See Propylenic chloride.
- $\alpha\alpha\beta$ -trichloro-*, *$\alpha\alpha\beta\gamma$ -tetrachloro-* and *pentachloro-* (MOUNEYRAT), A., i, 725.
- nitro-, electrolytic reduction of (PIERON), A., i, 844.
- $\alpha\beta$ - and $\alpha\gamma$ -dithiocyano-*, action of, on ethylic cupracetoacetate (KOHLEK), A., i, 737.
- cyclo-Propane (trimethylene)**, preparation of (WOLKOFF and MENSCHUTKIN), A., i, 196; (GUSTAVSON), A., i, 421.
- boiling and melting points of (LADENBURG and KRÜGEL), A., ii, 545.
- conversion of, into propylene (WOLKOFF and MENSCHUTKIN), A., i, 196; TANATAR), A., i, 422, 657.
- action of bromine on (TANATAR), A., i, 657; (BERTHELOT), A., i, 872.
- cyano-, attempted preparation of (CARPENTER and PERKIN), T., 927; P., 1899, 134.
- cyclo-Propanecarboxylic acid (trimethylenecarboxylic acid)** (IDZKOWSKA and WAGNER), A., i, 489.
- cyano-, salts and amide (CARPENTER and PERKIN), T., 924; P., 1899, 134.
- cyclo-Propanecarboxylonitrile (ethylenecarbonitrile, trimethylenecarbonitrile)** (HENRY), A., i, 676.
- Propanedicarboxylic acids.** See :—
Glutaric acid.
Methylsuccinic acid.
- cyclo-Propanedicarboxylic acid (trimethylenedicarboxylic acid)**, formation of (CARPENTER and PERKIN), T., 927; P., 1899, 134.
- Propanediolamine.** See $\alpha\beta$ -Propylenic glycol, γ -amino-.
- Propanepentacarboxylamide** (RUHEMANN), T., 247; P., 1899, 6.
- Propanepentacarboxylic acid**, ethylic salt, action of ammonia on (RUHEMANN), T., 247; P., 1899, 6.
- Propanetetracarboxylic acid (methylenedimalonic acid)**, ethylic salt (KNOEVENAGEL), A., i, 116; (KOMPPA), A., i, 416.
- Propanetricarboxylic acid.** See Carboxyglutaric acid.
- Propanilide**, action of sulphuric acid on (BAGNALL), T., 282.
- Propargylic alcohol (propinol)**, and its iodo-derivative, and action of water (LESPIEAU), A., i, 184.

- ω_2 - Δ - ω_1 -Propenetricarboxylic acid.** See *iso*-Aconitic acid.
- Propenyl- β -*o*-aminophenylbenzimidazole,** and its salts (VON NIEMEN-TOWSKI), A., i, 646.
- Propionamide,** preparation of (ASCHAN), A., i, 14.
- mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
- Propionamidoazobenzene,** α -bromo-, and its lactyl derivative (BISCHOFF and HUREWITSCH), A., i, 231.
- Propionic acid,** probable presence of, in plants (LIEBEN), A., ii, 45.
- from oxidation of ethylacrylic acid, and its anilide (CROSSLEY and LE SUEUR), T., 167; P., 1898, 219.
- influence of, on formation of azo-compounds (GOLDSCHMIDT and BÜRKLE), A., ii, 276.
- condensation of isobutaldehyde and acetaldehyde with (KIETREIBER), A., i, 331.
- separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- separation of acetic, butyric, and formic acids from (HABERLAND), A., ii, 531.
- Propionic acid,** mercury salt, dissociation and conductivity of (LEY and KISSEL), A., ii, 486.
- praseodymium salt (SCHEELE), A., ii, 100.
- silver salt, solubility of (ARRHENIUS), A., ii, 360.
- amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
- depression of freezing point of thymol by, and viscosity of solutions of, in thymol (SCHALL), A., ii, 640.
- and bromo-, *l*-amylic salts, molecular rotations of (WALDEN), A., ii, 622.
- and *aa*-dibromo-, ethylic salts, velocity of formation and hydrolysis of (SUDBOROUGH and LLOYD), T., 474; P., 1899, 3.
- Propionic acid,** α -bromo-, ethylic salt, action of benzyaniline and diphenylamine on (BISCHOFF), A., i, 125.
- ethylic salt, action of sodium alkyl-oxides on (BISCHOFF), A., i, 669, 670.
- ethylic salt, condensation of, with ethylic acetoacetate, methyl-acetoacetate, malonate, methyl-malonate, cyanacetate, and α -cyanopropionate (BONE and SPRANKLING), T., 847.
- Propionic acid,** chloro-, optical isomerism of (WALDEN), A., ii, 393.
- and bromo-, ethereal salts, densities, specific rotations and molecular volumes of (FRANKLAND), T., 357.
- α -dichloro-, sodium salt, electrolysis of; also formation of α -dichloro-ethylic salt of (TROEGER and EWERS), A., i, 12.
- α -cyano-, ethylic salt, condensation of, with ethylic α -bromisobutyrate (BONE and SPRANKLING), T., 851.
- β -iodo-, sodium salt, electrolysis of (TROEGER and EWERS), A., i, 12.
- Propionitrile** (*ethylic cyanide*), conductivity of electrolytes in (DUTOIT and FRIDERICH), A., ii, 350.
- action of cuprous chloride on (RABAUT), A., i, 557.
- α - and β -chloro- (HENRY), A., i, 183.
- Propionobenzylamide,** α -bromo- (BISCHOFF and TSCHUNKEW), A., i, 277.
- Propiono-benzylanilide and -diphenylamide,** α -bromo- (BISCHOFF), A., i, 126.
- Propionodiphenylhydrazide,** α -bromo- (BISCHOFF), A., i, 278.
- Propiono-*o*-nitranilide,** α -bromo- (BISCHOFF and PÄPKE), A., i, 278.
- Propiono-*m*-nitranilide,** α -bromo- (BISCHOFF and WATSCHJANZ), A., i, 278.
- Propiono-*p*-nitranilide,** α -bromo- (BISCHOFF and HIRSCHFELD), A., i, 278.
- Propionophenetidine,** bromo- (BISCHOFF and SCHATZ), A., i, 278.
- Propionophenylhydrazide,** preparation of (LEIGHTON), A., i, 51.
- β -Propionophenylhydrazide,** from hydrolysis of nitropropaldehydephenylhydrazone (BAMBERGER), A., i, 108.
- Propionopiperidine** (AUERBACH and WOLFFENSTEIN), A., i, 936.
- α -bromo- (BISCHOFF and HOLM), A., i, 230.
- Propiono-*m*-toluidide,** α -bromo- (BISCHOFF and PÄPKE), A., i, 277.
- Propiono-*m*-xylylide,** α -bromo- (BISCHOFF and PÄPKE), A., i, 278.
- p*-Propionylanisoil,** hydrolysis of, by phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- Propionylbutyryl.** See Ethyl propyl diketone.
- Propionylcarbazole,** α -bromo- (BISCHOFF and WALDMANN), A., i, 231.
- Propionyl- ψ -cumene** and its compound with phosphoric acid (KLAGES and LICKROTH), A., i, 599.
- p*-Propionylethylbenzene,** and oxime (KLAGES and LICKROTH), A., i, 599.

- Propionylformic acid** (*α -ketobutenoic acid*), probable formation of, by action of soda on vinylglycollic acid (SLEEN), A., i, 864.
- aa*-Propionylhydroxypropionic acid**, oxime, and salts (HANRIOT and REYNAUD), A., i, 723.
- Propionylmalic acid**, ethereal salts, specific rotations, and molecular volumes of (FRANKLAND), T., 348, 351.
- Propionylpentethylbenzene** (KLAGES and LICKROTH), A., i, 599.
- Propionylpropionitrile**, action of cuprous chloride on (RABAUT), A., i, 557.
- Propionylvaleryl**. See Ethyl butyl diketone.
- o*-Propiophenonecarboxylic acid** (GOTTLIEB), A., i, 511.
- p*-Propoxybenzamide** (GATTERMANN and KJELLBOM), A., i, 510.
- Propylacetoacetic acid**, *di*bromo-, ethylic salt, formation of ethylmesaconic acid from (SEMENOFF), A., i, 792.
- iso*-Propylacetoacetic acid**, *di*bromo-, ethylic salt, formation of dimethylmesaconic acid from (SEMENOFF), A., i, 792.
- β -*iso*-Propylacetobutyric acid**, ethylic salt, and action of sodium ethoxide on (BARBIER and GRIGNARD), A., i, 113.
- iso*-Propylacrylic acid**. See Hexenoic acid.
- β -*iso*-Propylacrylic acid**. See Hexenoic acid.
- β -*iso*-Propylacrylonitrile**. See Hexenoic acid, nitrile of.
- Propylamine**, compounds of, with metallic salts (MATTHEWS), A., ii, 296. action of nitrosyl chloride on (SOLONINA), A., i, 473.
- o*-Propylaniline** (GOTTLIEB), A., i, 512. and its salts, and acetyl and benzoyl derivatives (PICCININI and CAMOZZI), A., i, 74.
- Propylbenzamide**, β -bromo- (UEDINCK), A., i, 497.
- Propylbenzenesulphonamides**, *o*-, *m*-, and *p*- (MOODY), P., 1899, 16.
- Propylbenzene-2-, -3-, and -4-sulphonic acids**, and their amides (MOODY), P., 1899, 16.
- Propylbenzoic acid**. See *n*-Cuminic acid.
- Propylbornylamine**, hydrochloride, hydriodide, platinochloride, benzoyl derivative (FORSTER), T., 948; P., 1899, 72.
- iso*-Propylbornylamine**, platinochloride (FORSTER), T., 949; P., 1899, 72.
- p*-*iso*-Propylisobutenylbenzene** (SAPOSHNIKOFF), A., i, 896.
- β -*iso*-Propylbutyric acid**. See Heptoic acid.
- Propylcacodylic acid**. See Dipropylarsinic acid.
- Propylcarbamide**, *di*bromo-, and its aurichloride and picrate (RUNDQVIST), A., i, 17.
- n*- and *iso*-Propylchlorophosphine**, and action of water, chlorine, and sulphur on (GUICHARD), A., i, 563.
- Propylcitraconic acid** and its anhydride; also its reduction, and its conversion into propylitaconic and propylmesaconic acids (FITTIG and FICHTER), A., i, 336.
- iso*-Propylcitraconic acid** and its anhydride; also its reduction, and its conversion into *isopropylitaconic* and *isopropylmesaconic* acids (FITTIG and BURWELL), A., i, 336.
- Propylene**, production of, from cyclopropane (TANATAR), A., i, 422, 657; (BERTHELOT), A., i, 872. boiling point of (LADENBERG and KRÜGEL), A., ii, 545. action of bromine on (TANATAR), A., i, 657; (BERTHELOT), A., i, 872. bromhydrin and iodhydrin, action of potassium cyanide on (HENRY), A., i, 182.
- Propylene**, α -bromo-, and β -bromo-, formation of (SOLONINA), A., i, 681. *di*bromo-, from action of bromine on hydrocarbon, C_3H_4 (FREUNDLER), A., i, 98. α -*dichloro*- (JOCITSCH and FAWORSKY), A., i, 786.
- Propylenediamine**, compounds of, with salts of nickel and platinum (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.
- Propylenedicarboxylic acids**. See:—
Citraconic acid.
Glutaconic acid.
Itaconic acid.
Mesaconic acid.
- Propylenedipiperidine** (ASCHAN), A., i, 542.
- iso*-Propylenemalononic acid**, ethylic salt, condensation of, with ethylic sodiomalonate (LAWRENCE), P., 1899, 62.
- Propylene- $\alpha\alpha\beta\gamma$ -tetracarboxylic acid**, ethylic salt, from action of ethylic sodiomalonate on ethylic *di*bromomaleate (RUHEMANN and CUNNINGTON), T., 963; P., 1899, 186.
- Propylene- $\alpha\alpha\gamma\gamma$ -tetracarboxylic acid**. See Dicarboxyglutaconic acid.
- Propylene- ψ -thiocarbamide**, action of nitrous acid on, and its nitro-derivative (GABRIEL and LEUPOLD), A., i, 104.
- Propylenetricarboxylic acids**. See Aconitic acids.

Propylenic bromide ($\alpha\beta$ -dibromopropane), from action of bromine on propylic bromide in presence of aluminium bromide (MOUNEYRAT), A., i, 97.
 action of bromine on, in presence of aluminium bromide (MOUNEYRAT), A., i, 555.
 action of solution of aluminium bromide in carbon disulphide on (KONOWALOFF), A., i, 471.
 action of zinc on (BERTHELOT), A., i, 872.
 chloride, formation of, and action of chlorine on, in presence of aluminium chloride (MOUNEYRAT), A., i, 725.
 $\alpha\beta$ -Propylenic glycol, preparation of (HENRY), A., i, 660.
 action of bromine water on (KLING), A., i, 787.
 biochemical oxidation and purification of (KLING), A., i, 323.
 $\alpha\beta$ -Propylenic glycol, γ -amino- (propane-diolamine) (CHIARI), A., i, 325; (KNORR and KNORR), A., i, 411.
 α -thiocyano- (α -thiocyanhydrin), from action of potassium thiocyanate on α -chloropropylenic glycol (ENGLE), A., i, 3.
 $\alpha\gamma$ -Propylenic glycol. See Trimethylene glycol.
iso-Propylethane. See Pentane.
iso-Propylethylene. See Amylene.
iso-Propylethynitramine (FRANCHIMONT and UMBGROVE), A., i, 106.
 β -iso-Propylglutaric acid (*hexanedicarboxylic acid*) (LAWRENCE), T., 532; P., 105.
 and its ethylic and silver salts (KNOEVENAGEL), A., i, 116.
 and imide, anhydride, and anilic acid; also dissociation constant (HOWLES and THORPE), P., 1899, 104.
 β -iso-Propylglutaric acid, α -cyano, ethylic, and ethylic hydrogen salts (HOWLES and THORPE), P., 1899, 104.
 n - and iso- α -Propylglyceric acids (*dihydroxyhexoic acids*), and the lead salt of the former (SEMENOFF), A., i, 866.
Propylic alcohol, dielectric constant of, temperature coefficient of (ABEGG and SEITZ), A., ii, 623.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 critical temperatures of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 action of hydrogen peroxide on, in presence and absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.

VOL. LXXVI. ii.

Propylic alcohol, velocity of reaction between propylic benzenesulphonate and (SAGREBIN), A., ii, 735.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 669.
 compound of, with carbon dioxide (HEMPEL and SEIDEL), A., ii, 152.
Propylic alcohol, $\alpha\beta$ -dibromo- ($\alpha\beta$ -dibromhydrin), action of potassium thiocyanate on (ENGLE), A., i, 3.
 $\beta\beta\gamma$ - and $\beta\gamma\gamma$ -tribromo-, and $\beta\beta\gamma$ -tetrabromo- (LESPIEAU), A., i, 184.
 α - and γ -cyano-. See α - and γ -Hydroxybutyronitrile.
 $\alpha\beta$ -dithiocyano- ($\alpha\beta$ -dithiocyanhydrin), from action of potassium thiocyanate on $\alpha\beta$ -dibromopropylic alcohol (ENGLE), A., i, 3.
iso-Propylic alcohol, electrical dispersion of (LÖWE), A., ii, 201.
 specific heat and heat of vaporisation of (LUGININ), A., ii, 269.
 heat of combustion of (ZOUBOFF), A., ii, 589.
 critical temperature of mixtures of, with ethane (KUENEN and ROBSON), A., ii, 356.
 and its benzenesulphonate, velocity of reaction between (SAGREBIN), A., ii, 735.
 action of hydrogen peroxide on, in presence and in absence of iron (FENTON and JACKSON), T., 2; P., 1898, 240.
 action of phosphorus tribromide on (MENSCHUTKIN), A., i, 937.
 action of phosphorus trichloride on (MILOBENDSKI), A., i, 659.
 aluminium derivative of (TISCHENKO), A., i, 408.
 sodium derivative, action of, on ethylic salts of α -bromo-fatty acids (BISCHOFF), A., i, 669.
iso-Propylic alcohol, $\beta\beta$ -bromonitro-, and its nitrate and acetate; also the action of formaldehyde on it (MAAS), A., i, 322.
 $\alpha\gamma$ -dichloro- ($\alpha\gamma$ -dichlorhydrin), action of potassium thiocyanate on (ENGLE), A., i, 3.
 β -cyano-. See β -Hydroxybutyronitrile.
 nitro-, and the action of acetic chloride on it (HENRY), A., i, 475.
 action of potassium dichromate and sulphuric acid on (HENRY), A., i, 251.
 $\alpha\gamma$ -dithiocyano- ($\alpha\gamma$ -dithiocyanhydrin), from action of potassium thiocyanate on $\alpha\gamma$ -dichlorisopropylic alcohol (ENGLE), A., i, 3.

77

- Propyllic amylic ether**, density, specific rotation, and molecular volume of (FRANKLAND), T., 360.
- β -disulphide**, diamino-, from action of iodine on mercaptomethylthiazoline, and its hydrochloride and picrate (GABRIEL and LEUPOLD), A., i, 104.
- bromide, action of bromine on, in presence of aluminium bromide (MOUNEYRAT), A., i, 97.
- action of solution of aluminium bromide in carbon disulphide on (KONOWALOFF), A., i, 471.
- chloride, action of chlorine on, in presence of aluminium chloride (MOUNEYRAT), A., i, 725.
- cyanide. See Butyronitrile.
- β -Propylideneaminobiuret**, and the action of nitric acid and of hydrogen cyanide on it (THIELE and UHLFELDER), A., i, 118.
- β -Propylidenebenzenesulphonhydrazine**, and acetyl derivative (CURTIUS and LORENZEN), A., i, 149.
- β -Propylidene-*m*- and *p*-bromobenzhydrazides** (CURTIUS and PORTNER), A., i, 136.
- Propylenedicarboxylic acid**. See Ethylenemalononic acid.
- β -Propylidene- β -naphthylsulphonhydrazide** (CURTIUS and LORENZEN), A., i, 149.
- Propylenetricarboxylic acid**. See *iso*-Aconitic acid.
- iso*-Propylimidazolone** (CONRAD and HOCK), A., i, 632.
- Propylitaconic acid**, and its reduction (FITTIG and FICHTER), A., i, 336.
- iso*-Propylitaconic acid**, and its reduction (FITTIG and BURWELL), A., i, 336.
- action of sulphuric acid on (FITTIG and THRON), A., i, 337.
- Propylmalonic acid**, heat of solution and neutralisation of (MASSOL), A., ii, 204.
- Propyl- β -mercaptan**, amino-, hydrochloride, from action of hydrochloric acid on mercaptomethylthiazoline; also its picrate (GABRIEL and LEUPOLD), A., i, 104.
- Propylmesaconic acid**, and its reduction (FITTIG and FICHTER), A., i, 336.
- iso*-Propylmesaconic acid** ("oxyheptic acid"), and its reduction (FITTIG and BURWELL), A., i, 336.
- iso*-Propylmethylnitramine** (FRANCHIMONT and UMBROVE), A., i, 106.
- Propylnitramine** and its alkyl derivatives (UMBROVE and FRANCHIMONT), A., i, 105, 106.
- Propyl-*o*- and -*p*-nitrobenzamides**, β -bromo- (UEDINCK), A., i, 498.
- Propylnitrolic acid**, formation of (PONZIO), A., i, 667.
- n*- and *iso*-Propyloxylchlorophosphines** (GUICHARD), A., i, 564.
- Propylparaconic acid**, ethylic salt, action of sodium ethoxide on (FITTIG and FICHTER), A., i, 336.
- iso*-Propylparaconic acid**, ethylic salt, and the action of sodium ethoxide on (FITTIG and BURWELL), A., i, 336.
- iso*-Propylisoparaconic acid**, and its ethylic salts (FITTIG and BURWELL), A., i, 337.
- preparation of, and the action of heat on it; also the action of sodium on its ethylic salt (FITTIG and THRON), A., i, 337.
- N*-*iso*-Propylphenacetine** (HINSBERG), A., i, 495.
- p*-Propylphenol**, and its tribromo-derivatives (KLAGES), A., i, 585.
- p*-Propylphenylic methylic ether** (KLAGES), A., i, 585.
- 3-*iso*-Propylphenyl-1-methyl-cyclohexanol-5**, and acetyl derivative; **3-*iso*-Propylphenyl-1-methylcyclohexanone-5**, and semicarbazone; **3-*iso*-Propylphenyl-1-methylcyclohexene** (KNOEVENAGEL, WEDEMEYER, and GIESE), A., i, 291.
- 3-*iso*-Propylphenyl-1-methyl-5-cyclohexenone** and oxime (KNOEVENAGEL and WEDEMEYER), A., i, 215.
- dimeric form of (KNOEVENAGEL and REINECKE), A., i, 341.
- 3-*iso*-Propylphenyl-1-methyl-5-cyclohexenone-2:4-dicarboxylic acid**, ethylic salt and oxime (KNOEVENAGEL and WEDEMEYER), A., i, 215.
- p*-*iso*-Propylphenylpivalic acid**, synthesis of, and salts (SAPOSCHNIKOFF), A., i, 896.
- n*- and *iso*-Propyl-phosphinic and -phosphinous acids** (GUICHARD), A., i, 564.
- Propylphthalide**, and ***iso*-Propylphthalide** (GUCCI), A., i, 513.
- 1-Propyl-2-pipecoleine** (1-propyl- Δ^2 -tetrahydropipecoline) (LADENBURG and THEODOR), A., i, 304.
- N*-Propyl- α -pipecoleyl- β -alkine**. See 2-Methyl-3-hydroxymethyl-1-propyl- Δ^2 -tetrahydropyridine.
- 1-Propyl-2-pipecoline** (LADENBURG and THEODOR), A., i, 304.
- rotation of (HOHENEMSER and WOLF-FENSTEIN), A., i, 937.
- N*-Propyl- α -pipecolyl- β -alkine**. See 2-Methyl-3-hydroxymethyl-1-propyl-piperidine.

- 2-Propylpiperidine**, rotation of (HOHENEMSER and WOLFFENSTEIN), A., i, 936.
oxide (AUERBACH and WOLFFENSTEIN), A., i, 935.
- Propylpyrrolidine**, bromo- (SCHLINCK), A., i, 541.
- 4'-Propylquinoline** and salts (KOENIGS), A., i, 75.
- 2'-iso-Propylquinoxaline** (CONRAD and HOCK), A., i, 642.
- iso-Propylsuccinic acid**, oxidation of (LAWRENCE), T., 531; P., 105.
- n*- and *iso*-**Propylsuccinic acids**, β -bromo- (SEMENOFF), A., i, 866.
- 1-Propyl- Δ_2 -tetrahydroipicoline**. See 1-Propyl-2-pipecoleine.
- iso-Propyltetrahydroquinoxaline** (CONRAD and HOCK), A., i, 642.
- Propylthiochlorophosphine** (GUICHARD), A., i, 564.
- Propylvaleraldehyde**, amino-, action of carbon disulphide on (MAASS and WOLFFENSTEIN), A., i, 110.
- Prosopite** from Utah (HILLEBRAND), A., ii, 301.
- Prostate**, action of the secretion of the (CAMUS and GLEY), A., ii, 779.
- Protagon**, amount of, in normal and degenerated nerve-fibres (NOLL), A., ii, 568.
- Protamine** of mackerel spermatozoa (KURAÉEFF), A., ii, 313.
detection of, in sections of animal organs (SAINT-HILAIRE), A., ii, 133.
- Protamines**, classification and hydrolytic products of (KOSSEL), A., i, 833.
- Proteid food stuffs**, digestibility of certain (SCHULZE), A., ii, 509.
nitrogen, distinction between amidic nitrogen and (MALLER), A., ii, 576.
substances, non-formation of, by *Bacillus cholerae*, *B. diptheritidis* and Löffler's bacillus (HUGOUNENQ and DOYON), A., ii, 377.
- Proteids (albuminoids)**, constitution of (HAUSMANN; PRÖSCHER), A., i, 653; (OSBORNE), A., i, 836.
molecular weights of (VAUBEL), A., i, 839.
presence of, in fungi (WINTERSTEIN), A., ii, 240.
of muscle (STEWART and SOLLMANN), A., ii, 680.
in *Picea excelsa* seeds, decomposition of (RONGGER), A., ii, 241.
in plants, formation of (HÉBERT), A., ii, 47.
of wheat gluten (RITTHAUSEN), A., i, 724.
separable from yeast extract (WRÓBLEWSKI), A., ii, 170.
- Proteids (albuminoids)**, basic and acid capacity of (SPIRO and PEMSEL), A., ii, 230.
action of formaldehyde on (LEPIERRE), A., i, 654.
action of superheated water on (SALKOWSKI), A., ii, 374.
absorption of, from the intestine (MENDEL), A., ii, 230; (LEVEENE and LEVIN), A., ii, 309.
coagulation of, by electricity (HARDY), A., ii, 567.
the decomposition processes of (PRIANISCHNIKOFF), A., ii, 787.
influence of sugar on decomposition of (SALKOWSKI), A., i, 724.
in plants, decomposition of (SCHULZE), A., ii, 240.
conversion of, into fat in the living body (CREMER), A., ii, 775.
conversion of, into sugar in the living body (KUMAGAWA and MIURA; COHN), A., ii, 776.
course of peptic digestion of (ZUNZ), A., ii, 774.
products of digestion of (LAWROFF), A., ii, 309.
formation of glycocine by decomposition of (SPIRO), A., ii, 777.
formation of scatoleacetic acid in putrefaction of (SALKOWSKI), A., ii, 567.
influence of sodium chloride on metabolism of (STRAUB), A., ii, 372.
metabolism of phosphorus-containing (ZADIK), A., ii, 774.
reactions of the histone group of (BANG), A., i, 836.
solubility of, in glycerol (RITTHAUSEN), A., i, 724.
coagulable, separation of, from malt, wort and beer (LASZCZYNSKI), A., ii, 793.
detection of (ELLIOTT), A., ii, 136; (GNEZDA), A., ii, 715.
estimation of, in blood serum (PATEIN), A., ii, 827.
estimation of, in urine (CHIBRET), A., ii, 459.
- Proteids**. See also:—
Albumins.
Albumoses.
Anti-albumid.
Antipeptone.
Arbacin.
Artolin.
Casein.
Conchiolin.
Deuteroalbumoses.
Edestin.
Fibrin.
Fibroin.

Proteids. See:—

Gelatin, silk-.
Globin.
Globulin, egg-.
Glucoproteid from ox blood.
Gluten, wheat-.
Glutolin.
Hæmoglobin.
Hemipeptone.
Histon.
Nucleohiston.
Opalisin.
Ovimucoid.
Peptones.
Protalbumoses.
Serum-globulin.

Proteinchrome, bromo-, composition of (KURAEFF), A., i, 314.

Proteolytic-ferment, presence of, in fungi (BOURQUELOT and HÉRISSEY), A., i, 313.

Protease, presence of, in pathological urine (ROSIN), A., ii, 42.

Proteoses, presence of, in yeast-extract (WRÓBLEWSKI), A., ii, 170.
solubility of, in alcohol (EFFRONT), A., i, 835.

physiological action of (CHITTENDEN, MENDEL, and HENDERSON), A., ii, 233; (THOMPSON), A., ii, 604, 677.

Prothebenine (*thebenine propylic ether*) and **Prothebenol** (FREUND), A., i, 308.

Protocatechuic acid (3:4-*dihydroxybenzoic acid*), action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.

Protocetraric acid, presence of, in *Cladonia rangiferina* and *C. silvatica* (HESSE), A., i, 384.

Protoplasm, structure of (HARDY), A., ii, 438.

See also Agricultural chemistry.

Protoplast, nature of (MEYER), A., ii, 321.

Proustite, artificial (SOMMERLAD), A., ii, 216.

Prozan (*triazan*), derivatives of (THIELE and OSBORNE), A., i, 413.

Prunus laurocerasus, presence and distribution of hydrocyanic acid in (VAN DER VEN), A., ii, 240.

Prussian Blue, solubility of, in ether and chloroform in presence of fat (FRESENIUS and GRÜNHUT), A., ii, 262.

Prussic acid. See Hydrocyanic acid under Cyanogen.

"**Pseudo-catalysis**" (WAGNER), A., ii, 275.

Pseudomalachite. See Phosphorochalcite.

Psilomelane from Colorado (EAKINS), A., ii, 564.

Ptomaines (*leucomaines*) of the brain (GULEWITSCH), A., ii, 439.
estimation of, in urine (CHIBRET), A., ii, 459.

Ptyalin, influence of various substances on the activity of (KÜBEL), A., ii, 603.

Pulegenacetone, and oxime, and benzoyl derivative (BARBIER), A., i, 299.

iso-**Pulegol**, in commercial citronellal (TIEMANN), A., i, 622.

Pulegone and its hydrosulphonic acids, formation of, from action of sulphurous acid on citronellal (TIEMANN and KRÜGER), A., i, 248.
action of ethylic sodiomalonate on (VORLÄNDER and GÄRTNER), A., i, 259.

Pulveraria chlorina, *P. latebrarum* and *P. farinosa*, constituents of (HESSE), A., i, 385.

Pulveraric acid from *Pulveraria farinosa*, and its barium salt (HESSE), A., i, 386.

Pulverin from *Pulveraria latebrarum* (HESSE), A., i, 385.

Pump, Geissler's, modification of (GUGLIELMO), A., ii, 474.

Purine, and salts (FISCHER), A., i, 175.
trichloro-, behaviour of, towards potassium hydrosulphide (FISCHER), A., i, 262.

2:6-*diiodo* (FISCHER), A., i, 175.

Purine group, summary of results, and of methods of synthesis (FISCHER), A., i, 458.

Purpurin (1:2:4-*trihydroxyanthraquinone*), monometallic derivatives of (PERKIN), T., 435; P., 1899, 65.
methyl ether (PERKIN), T., 446; P., 1899, 66.

Putrescine. See Tetramethylenediamine.

Pyknometer, Sprengel's modification of (MINOZZI), A., ii, 646.
temperature corrections in using (FUCHS), A., ii, 272.

Pyrazole, from acetylene and diazomethane (VON PECHMANN), A., i, 232.

1:3:5-**Pyrazole**, formation of (SEIDEL), A., i, 139.

Pyrazole-4:5-dicarboxylic acid, and methyl salt (VON PECHMANN and SEEL), A., i, 948.

Pyrazolones, conversion of, into pyrazoles (MICHAELIS and RÖHMER), A., i, 233.

Pyridazine-3-carboxylic acid (GABRIEL and COLMAN), A., i, 392.

Pyridazone, *di*bromo-, and its barium salt (BISTRZYCKI and SIMONIS), A., i, 392.

- Pyridine**, specific heat, and heat of vapourisation of (LUGININ), A., ii, 354.
 depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
 aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
 distillation of, with aliphatic acids (ANDRÉ), A., i, 160.
 absorption of argon by (BERTHELOT), A., ii, 653.
 action of chloranil on (IMBERT), A., i, 633.
 action of, on cupric salts (MOITESSIER), A., i, 808.
 action of ethylenic iodide on (LADENBURG), A., i, 387.
 action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
 reactions of metallic salts dissolved in (NAUMANN), A., ii, 423.
 compound of, with carbonyl chloride (MOREL), A., i, 877.
 compounds of palladium (ROSENHEIM and MAASS), A., i, 163.
 compounds of, with metallic salts (MATTHEWS), A., ii, 296.
 salts and hydrates of bivalent metals with (REITZENSTEIN), A., i, 160.
 cerium hexachloride (KOPPEL), A., ii, 98.
 hydrochloride, action of chlorine on (SELL and DOOTSON), T., 979; P., 1899, 187.
- Pyridine**, 2-amino-, *o*-hydroxybenzylidene, and *p*-nitrobenzylidene derivatives of (FISCHER, HOERGER, and JAEGER), A., i, 634.
 3-amino- (CURTIUS and MOHR), A., i, 73.
 2-bromo-, and salts (FISCHER and SEIDEL), A., i, 634.
 2-chloro- (FISCHER, HOERGER, and JAEGER), A., i, 633.
 4-chloro-, salts of (FISCHER and DEMELER), A., 635.
 dichloro-, tetrachloro-, and trichloro-amino- (SELL and DOOTSON), T., 986; P., 1899, 187.
 2-iodo-, methiodide of (FISCHER, HOERGER, and JAEGER), A., i, 634.
- Pyridineazoresorcinol** (MOHR), A., i, 72.
- Pyridine-3-carboxylic acid**. See Nicotinic acid.
- Pyridylacetylonyl chloride** and its oxime, and physiological action of (SCHMIDT), A., i, 4.
 oxime, hydrazone, and salts, and monoacetyl derivative (SCHMIDT and KNUITTEL), A., i, 228, 229.
- Pyridylacetophenyl bromide** and its oxime; and physiological action of (SCHMIDT), A., i, 4.
- β -Pyridilurethane** (CURTIUS and MOHR), A., i, 73.
- Pyrimidine** (*m-diazine*) (GABRIEL and COLMAN), A., i, 639.
- Pyrimidine-4-carboxylic acid** (GABRIEL and COLMAN), A., i, 639.
- Pyrites** (*iron pyrites*) deposited by mineral water (KNETT), A., ii, 772.
 tetartohedrisms (?) of (MIERS and HARTLEY), A., ii, 432.
 estimation of sulphur in (HEIDENREICH), A., ii, 517; (MEINEKE), A., ii, 693; (HERTING), A., ii, 804.
 magnetic, relation of ferrous sulphide and troilite to (LINCK), A., ii, 416.
- Pyrocatechol**. See Catechol.
- Pyrochroite** from Sweden, origin of (SJÖGREN), A., ii, 761.
- Pyrocinechonic anhydride**, from distillation of methylitaconic and methylmesaconic acids (FITTIG and KETNER), A., i, 333.
 condensation of, with benzaldehyde (THIELE), A., i, 216.
- Pyrogallol**, influence of, on the oxidation of iodide by bromic acid (SCHLOFF), A., ii, 147.
 action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
 action of iron salts on (HIRSCH), A., ii, 817.
 distinction between gallic acid and (GRIGGI), A., ii, 581.
 potassium derivative, absorption of oxygen by (BERTHELOT), A., i, 427.
 dimethylic ether, and its ethylic carbonate (ROSAUER), A., i, 346.
- Pyrogallolsuccinein**, and salts (VON GEORGIEVICS), A., i, 803.
- Pyromeconic acid**, action of iodic acid and of iodoform on (PERATONER and LEONARDI), A., i, 421.
 iodo- (PERATONER and LEONARDI), A., i, 421.
- Pyromorphite** from New South Wales (MINGAYE), A., ii, 670.
- Pyromucic acid**, barium salt, hydrocarbon from distillation of (FREUNDLER), A., i, 98.
- 1:2-Pyromucylacetic acid**, ethylic salt (BOUEVAULT), A., i, 120.
- α -Pyrone** derivatives, formation of, from ethylic phenylpropionate and β -diketones (RUHEMANN), T., 415; P., 1899, 55.
- Pyrophyllite** from Russia (ALEXÉEFF), A., ii, 673.
 vapour pressure of (TAMMANN), A., ii, 8.

- Pyrotartaric acid.** See Methylsuccinic acid.
- Pyroxene.** See Augite, Diopside, Diallage, Enstatite.
- 2:4-Pyrrodiazole.** See 1:2:4-Triazole.
- Pyrolidineallyl-thiocarbamide,** and ψ -thiocarbamide (SCHLINCK), A., i, 541.
- Pyrolidine-phenyl-, -methyl-, and -ethyl-thiocarbamides** (SCHLINCK), A., i, 540.
- Pyroline,** heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.
action of, on argon (BERTHELOT), A., ii, 653.
isonitroso-, and its sodium salt (SPICA and ANGELICO), A., i, 939.
- Pyruvamide,** semicarbazone of (THIELE and BAILEY), A., i, 169.
- β -o-Pyruvaminophenyl-*m*(*p*)-tolimidazole** (VON NIERMENTOWSKI), A., i, 645.
- Pyruvic acid,** action of benzylidene-aniline on (GARZAROLLI-THURNLACKH), A., i, 823, 940.
action of, on malonic acid (GARZAROLLI-THURNLACKH), A., i, 790.
action of potassium cyanide on, and the hydrolysis of the product (POMMERHNE), A., i, 574.
p-nitrophenylhydrazone (HYDE), A., i, 689.
salts of, transformation of, into the salts of parapyruvic acid (WOLFF), A., i, 483.
- Pyruvonitrile,** semicarbazone of (THIELE and BAILEY), A., i, 169.
- Q.**
- Quartz,** artificial formation of, by dry fusion (MOROZEWICZ), A., ii, 765.
solubility of, in water; growth of (SPEZIA), A., ii, 300.
pseudomorphous, from N. Carolina (HIDDEN and PRATT), A., ii, 300.
See also Amethyst, Citrine, &c.
- Quartz-porphry** from Algeria (DUPARC and RITTER), A., ii, 601.
- Quenstedtite** from Iowa (KUNTZE), A., ii, 761.
- Quercetin,** presence of, in heather (*Calluna vulgaris*) (PERKIN and NEWBURY), T., 837; P., 1899, 179.
monometallic derivatives, and tri-, and tetra-acetyl derivatives (PERKIN), T., 438; P., 1899, 65.
methylic ether. See Rhamnetin.
dimethylic ether. See Rhamnazin.
- Quercetin, dibromo-,** potassium derivative of (PERKIN), T., 438; P., 1899, 65.
- Quercitrin,** action of potassium acetate on (PERKIN), T., 439.
- Quercus.* See Agricultural chemistry.
- Quinacetophenone monethylic ether.** See 5-Ethoxy-2-hydroxyacetophenone.
- Quinaldine.** See 2'-Methylquinoline.
- Quince.** See Agricultural chemistry.
- Quince-seed oil** (HERMANN), A., i, 822.
- Quinic acid,** action of potash on (HOLLEMAN), A., i, 283.
- Quinidine *d*- and *l*-mandelates** (MCKENZIE), T., 967.
- Quinine,** azoimide (POMMERHNE), A., i, 88.
d- and *l*-mandelates (MCKENZIE), T., 967.
detection of, with Piutti's reagent (SCARFITT; SIMONCELLI), A., ii, 344.
detection of, in urine (CHRISTOMANOS), A., ii, 344.
the thalleioquinine test for (POLACCI), A., ii, 391.
estimation of, in cinchona bark (LENZ), A., ii, 391.
- Quinol (1:4-dihydroxybenzene),** action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
condensation of, with benzoin (JAPP and MELDRUM), T., 1041; P., 1899, 166.
- Quinol, tetrachloro-,** identification and separation of fatty acids by means of; also its diacetyl-, dipropionyl-, dibutyryl-, and di- α -methylisocrotonyl-derivatives (BOUYEAULT), A., i, 790.
- Quinoldibisdiphenylmethane** (MÖHLAU and KLOPPER), A., i, 913.
- Quinoldicarboxylic acid.** See 3:6-Dihydroxyterephthalic acid.
- Quinoline,** aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
action of bromacetophenone on (SCHMIDT), A., i, 5.
action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
compounds of, with metallic salts (MATTHEWS), A., ii, 296.
cerium hexachloride (KOPPEL), A., ii, 98.
perchromate (WIEDE), A., i, 245.
hydrohaloids, halogen compounds of (TROWBRIDGE), A., i, 636, 637.
- Quinoline, diiodo-** (ISTRATI), A., i, 389.
- iso-Quinoline,** hydrochloride, heat of formation of (LEROY), A., ii, 466.

4'-Quinolinaldehyde, nitro- (KOENIGS), A., i, 74.

***β*-o-Quinolinenbenzimidazole** and its sulphate (VON NIEMENTOWSKI), A., i, 647.

Quinoline-4'-carboxylic acid. See Cinchonic acid.

Quinolyl- and iso-Quinolyl-acetyl chlorides (SCHMIDT), A., i, 5; (SCHMIDT and GOELICH), A., i, 232.

***α*-Quinolylbutanetriol** (KOENIGS), A., i, 390.

***α*-Quinolylethanol** (*2-hydroxyethylquinoline*) (KOENIGS), A., i, 389.

4'-Quinolylethanol (*4'-hydroxyethylquinoline*, *lepidinealkine*), and salts (KOENIGS), A., i, 75.

***α*-Quinolylpropanediol** (KOENIGS), A., i, 390.

4'-Quinolylpropanediol, and salts, bromhydrin, *mono-* and *di-*iodohydrin (KOENIGS), A., i, 75.

Quinone (*benzoquinone*), condensation of, with diazomethane (VON PECHMANN and SEEL), A., i, 947.

chloro- (KEHRMANN and IDZKOWSKA), A., 493.

Quinones, colour reactions of, with malonic acid derivatives (LIEBERMANN), A., i, 219.

condensation of, with ethylic cyanoacetate, and with ethylic malonate (LIEBERMANN), A., i, 522.

***p*-Quinones**, preparation of (BAYRAC), A., i, 125.

condensation of, with benzhydrols (MÖHLAU and KLOPPER), A., i, 914.

Quinones, list of. See Ketones and Quinones.

Quinone-aminoguanidine and -bisaminoguanidine (THIELE and BARLOW), A., i, 47.

Quinonebisdiphenylmethane (MÖHLAU), A., i, 61; (MÖHLAU and KLOPPER), A., i, 912.

Quinonebistetramethyldiaminodiphenylmethane (MÖHLAU and KLOPPER), A., i, 913.

Quinonedicarboxylic acid, *düodo*, ethylic salt (GUICHARD), A., i, 700.

Quinonedioxime, *m*-chloro-, and its diacetyl derivative (KEHRMANN and GRAB), A., i, 129.

Quinonedisemicarbazide (THIELE and BARLOW), A., i, 48.

Quinoneoxime, *p*-dichloro-, and its acetyl derivative (KEHRMANN and GRAB), A., i, 129.

2:3-dinitroso- (NIETZKI and GEESE), A., i, 347.

Quinoneoximesemicarbazone (THIELE and BARLOW), A., i, 48.

Quinonephenylhydrazone, from action of hydrochloric acid on hydroxyazobenzene potassium derivative (HANTZSCH), A., i, 400.

Quinonesemicarbazone (THIELE and BARLOW), A., i, 48.

Quinonoid structure of flavones, alizarin derivatives, in relation to colour (PERKIN), T., 452.

R.

Racemic acid. Under Tartaric acid.

Racemic compounds. characterisation of (KIPPING and POPE), T., 36, 1119; P., 1898, 219; 1899, 200; A., ii, 733; (LADENBERG), T., 465; P., 1899, 73; A., ii, 551; (POPE), P., 1899, 73; (ROOZEBOOM), A., ii, 276, 732.

resolution of (MARCKWALD and MCKENZIE), A., ii, 733.

Radishes. See Agricultural chemistry.

Radium in carnotite (FRIEDEL and CUMENGE), A., ii, 435.

radiation from (BECQUEREL), A., ii, 393.

Rafaelite from Chili (ARZRUNI, THADDEEFF, and DANNENBERG), A., ii, 563.

Raffinose (*melitose*, *melitriose*), action of yeast enzymes on (KALANTHAR), A., i, 102.

estimation of, in sugar beet (SEMPOLOWSKI), A., ii, 389.

Rape and rape-cake. See Agricultural chemistry.

Rape oil, amount of arachidic acid in (ARCHBUTT), A., ii, 340.

detection of (PALAS), A., ii, 72.

Reduction flasks, syphon arrangement for (GÖCKEL), A., ii, 614.

Rennet, neutralising action of blood-serum on (BRIOT), A., ii, 780.

Resacetophenone. See 2:4-Dihydroxyacetophenone.

Resin from oleo-resin of *Dacryodes hexandra* (MORE), T., 719; P., 1899, 150.

Resins, and the cholesterol reaction (TSCHIRCH and HALBEY), A., i, 69.

of stick-lac (TSCHIRCH and FARNER), A., i, 447.

Resins. See also :—

- Amber.
- Chemawinite.
- Convolvulus resin.
- Fabianaresen.
- Galbanum resin.
- Hop-resin.
- Lac resin.
- Lariciresinol.
- Olibano-resin.

Resins. See:—*Olibanum electrum*, resin of.

Oporesinotannol.

Resin-acid, presence of, in beetroot liquors (ANDRLÍK and VOTOČEK), A., i, 157.**Resinotannols** (TSCHIRCH and FARNER), A., i, 447; (TSCHIRCH and KNITL), A., i, 714.**Resorcinol**, action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200. condensation of, with benzoin (JAPP and MELDRUM), T., 1039; P., 1899, 163.

diacetate, preparation of (FREYSS), A., i, 875.

monoethylic ether, substance obtained by action of nitrous acid on (KIET- AIBL), A., i, 345.

preparation of; α -o-nitroso-, β -o-nitroso-, and p -nitroso-, and salts (KIETAIL), A., i, 343.

diethylic ether. See 1:3-Diethoxybenzene.

Resorcinol, 4:6-dinitro-, and diethylic, ethylic, and dimethylic ethers (JACKSON and KOCH), A., i, 677. trinitro- (GUREWITSCH), A., i, 880.**Resorcinolsaccharein** and its triacetyl derivative, bromo- and iodo- (MONNET and KETSCHET), A., i, 213.**Resorcinolsulphurein** and tetrabromo- (SISLEY), A., i, 289.**Respiration**, relation of pigment of *Aelosoma tenebrarum* to (GRIFFITHS), A., ii, 115.

of plants. See Agricultural chemistry.

Respiratory exchange, effect of compression of one lung on (HARLEY), A., ii, 675.

influence of alcohol on human (WENDLESTADT), A., ii, 602.

Reticular tissue, composition of (TEBB), A., ii, 312.**Retzian**, composition of (SJÖGREN), A., ii, 35.**Rhamnazin** (*quercetin dimethylic ether*), potassium derivative of (PERKIN), T., 439; P., 1899, 65.**Rhamnetin** (*quercetin monomethylic ether*), potassium derivative of (PERKIN), T., 438; P., 1899, 65.**Rhamnitol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.*Rhamnus purshiana*, constituents of the bark of (LEPRINCE), A., i, 820.**Rhizocarpinic acid**, and its acetyl derivatives (HESSE), A., i, 384.*Rhizocarpon geographicum*, *f. contiguum*, and *f. lecanorinum*, constituents of (HESSE), A., i, 384.**Rhizonic acid** and **Rhizoninic acid** (HESSE), A., i, 385.**Rhodamine**, and salts and acetyl derivative (MEYER and SUNDMACHER), A., i, 756.**Rhodamine**, $C_{34}H_{22}O_3N_2$, obtained from aminosalicilic acid (FISCHER and SCHAAR-ROSENBERG), A., i, 283.**Rhodamines**, isomerides of (NOELTING and PAIRA), A., i, 371.**Rhodinol**, use of term (SCHIMMEL and Co.), A., i, 64.**Rhodium**, commercial, purity of (MYLIUS and DIETZ), A., ii, 160.**Rhodium bases**, constitution of (JÖRGENSEN), A., ii, 293.**Rhodiopentamine chloride** (MYLIUS and DIETZ), A., ii, 160.**Rhodium** potassium, sodium, and barium nitrites, and dioxide (JOLY and LEIDIE), A., ii, 34.**Rhodochrosite** from the Odenwald (KRAATZ-KOSCHLAU), A., ii, 302.**Rhodolite**, associated minerals of (HIDDEN and PRATT), A., ii, 300.**Rhubarb powder**, detection of turmeric in (JAWOROWSKI), A., ii, 75.**Rhyolite** from New Zealand (PARK and RUTLEY), A., ii, 769.

from North Carolina (DILLER), A., ii, 499.

Ricinus seeds, metabolism of reserve material in, during germination (MAQUENNE), A., ii, 171.**Rickets**, elimination of chlorides in (OECHSNER DE CONINCK), A., ii, 42.**Riebeckite** from Roumania (MRAZEC), A., ii, 768.**Rigor mortis**, influence of fatigue on (LATIMER), A., ii, 117.*Robinia*. See Agricultural chemistry.**Roccellic acid**, presence of, in *Lecanora sordida Swartzii* (HESSE), A., i, 383.**Rocks** from Antarctic regions (PRIOR), A., ii, 436.

from Mont-Dore (BONJEAN), A., ii, 674. from Oaxaca, Mexico (LENK), A., ii, 305.

from the Seychelles (BAUER), A., ii, 565.

from U.S.A., vanadium in (TURNER and others), A., ii, 498.

artificial (MOROZEWICZ), A., ii, 762. classification of aluminosilicate (MOROZEWICZ), A., ii, 763.

differentiation of, in magmas (TEALL), A., ii, 162.

vanadium and molybdenum in (HILLEBRAND), A., ii, 113.

estimation of sodium and potassium in (BONJEAN), A., ii, 695.

Rocks, dykes of Adamello mountains (RIVA), A., ii, 38.
volcanic, of Mont-Dore (BONJEAN ; LÉVY), A., ii, 500.

Rocks, new. See:—

Hatherlite.

Kyschtymite.

Pilandite.

Roots. See Agricultural chemistry.

Rosa canina fruit, the pectin of (BOURQUELOT and HÉRISSEY), A., i, 652, 967.

Rosaniline hydrochloride, molecular weight of, in water or alcohol (KRAFFT), A., ii, 472.

action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.

Rosanilines, formation of, from *p*-nitro-diaminotriphenylmethanes (PRUD'HOMME), A., i, 217.

Rosanilinesulphonic acids, behaviour of, towards Schiff's reagent (CAZENEUVE), A., i, 296.

Roscoelite from California (HILLEBRAND, TURNER, and CLARKE), A., ii, 496.

Rosemary (Dalmatian) oil of (SCHIMMEL and Co.), A., i, 63.

Roses, oil of (FLATAU and LABBÉ), A., i, 534.

examination of (RAIKOW), A., ii, 63, 130.

See also Agricultural chemistry.

Rosewood oil (SCHIMMEL and Co.), A., i, 924.

Rosindone, preparation of (SCHAPOSCHNIKOFF), A., i, 432.

iso-**Rosindone** and 2-amino-derivative (KEHRMANN and LEVY), A., i, 232.

1:4:2:7-Rosindonesulphonic acid (GAESS), A., i, 376.

Rosinduline chloride, 2-amino-, and salts (KEHRMANN, RADEMACHER and FEDER), A., i, 235.

2-nitro-, anhydride of, and salts and acetyl derivative (KEHRMANN, RADEMACHER and FEDER), A., i, 235.

Rosinduline, sixth isomeride of (KEHRMANN and JACOB), A., i, 238.

seventh isomeride of (KEHRMANN and RAVINSON), A., i, 525.

Rosolic acid, use of, in alkalimetry (GLASER), A., ii, 573.

Rottlerin, action of alkali acetates on (PERKIN), T., 443.

decomposition products of (PERKIN), T., 829; P., 1899, 162.

Rubber wares. See Caoutchouc.

Rubidium, ion velocity of, in flames (WILSON), A., ii, 723.

Rubidium, azoimide (CURTIUS and RISSOM), A., ii, 92.

chloride, spark spectrum of (DE GRAMONT), A., ii, 137.

densities and refractive indices of, solutions of (CONROY), A., ii, 717.

density of aqueous solutions of (DE COPPET), A., ii, 590.

fluoriodate (WEINLAND and LAUENSTEIN), A., ii, 363.

difluorodiselenate, difluorotellurate, and difluorodithionate (WEINLAND and ALFA), A., ii, 595.

fluoromanganite (WEINLAND and LAUENSTEIN), A., ii, 368.

lead iodide (MOSNIER), A., ii, 222.

iodochloride, potential difference between, and chlorine (SULLIVAN), A., ii, 398.

selenibromide (LENHER), A., ii, 19.

silicate, hydrolysis of, in aqueous solution (KAHLENBERG and LINCOLN), A., ii, 95.

sulphate crystals, thermal expansion of (TUTTON), A., ii, 630.

iron alum and cobalt alum (HOWE and O'NEAL), A., ii, 103.

persulphate, preparation and solubility of (FOSTER and SMITH), A., ii, 747.

Russula delicata juice, colour reaction of, with digested albumin (HARLAY), A., i, 835.

Ruthenium potassium nitrite (BRIZARD), A., ii, 664.

dioxide and tetroxide (MYLIUS and DIETZ), A., ii, 160.

tetroxide (HOWE and O'NEAL), A., ii, 103.

per-**Ruthenic acid** (MYLIUS and DIETZ), A., ii, 160; (ANTONY and LUCCHESI), A., ii, 299.

sulphate and sulphide (ANTONY and LUCCHESI), A., ii, 558.

Ruthenic potassium chloride (ANTONY and LUCCHESI), A., ii, 756.

Ruthenious dithionate (ANTONY and LUCCHESI), A., ii, 229.

Ruthenium, separation of, from iridium (LEIDIE), A., ii, 664.

Rutile ("favas") from Brazil (HUSSAK), A., ii, 432.

action of sulphuric acid on (BLONDEL), A., ii, 556.

Rutin, potassium salt of (PERKIN), T., 440; P., 1899, 65.

Rye. See Agricultural chemistry.

S.

"**Sacchareins**" (MONNET and KETSCHET), A., i, 289.

action of acids on (SISLEY), A., i, 289.

- Saccharic acid**, action of caustic potash on (HOLLEMAN), A., i, 283.
 potassium hydrogen salt, action of hydrobromic acid on (HILL and PHELPS), A., i, 576.
- "Saccharin"** (*o-benzoic sulphinide*), detection of (GAWALOWSKI), A., ii, 255; (HASTERLIK), A., ii, 819.
 valuation of (REID), A., ii, 581.
 See also *o*-Benzoic sulphinide.
- iso*-**Saccharin**, and its rotatory power (FABER and TOLLENS), A., i, 855.
- iso*-**Saccharinic acid**, from decomposition of celloxin (FABER and TOLLENS), A., i, 855.
- Saccharomyces cerevisia*, the fungose of (TANRET), A., ii, 171.
- Saccharomyces Ludwigi*, influence of non-fermentable sugars on fermentative power of (DIENERT), A., ii, 442.
- Saccharose**. See **Sucrose**.
- apo*-**Saffranine** (SCHAPOSCHNIKOFF), A., i, 481.
- iso*-**Saffrole**, action of ozone on (OTTO), A., ii, 282.
 nitrosite, compound obtained by action of alkalis on (ANGELI), A., i, 681.
- Sahlite**. See **Diopside**.
- Salazinic acid**, from *Lecidea sudetica* (ZOFF), A., i, 717.
- Salicil- α -osazone**, triacetyl derivative, and **Salicil- β -osazone**, tetracetyl derivative (BILTZ), A., i, 502, 503.
- Salicylaldehyde**, thermochemistry of (DELEFINE and RIVALS), A., ii, 727.
 condensation of, with bromethylamine hydrobromide (GABRIEL and LEUPOLD), A., i, 104.
 sodium derivative of (CAJAR), A., i, 146.
 acetate (REYCHLER), A., i, 56.
 mono- and tri-acetates (FREYSS), A., i, 875.
- Salicylaldehydhydrazone**, and a compound of, with ethylic acetoacetate (CAJAR), A., i, 146.
- Salicylaldehydphenylhydrazone**, oxidation of, by air (BILTZ), A., i, 502.
 3-nitro- and 5-nitro-, and acetyl derivatives (BILTZ), A., i, 503.
- Salicylaldehyde-*m*-nitrophenylhydrazone** (ROUGY), A., i, 753.
- Salicylaldoxime**, ethylic carbonate (CAJAR), A., i, 147.
- Salicylamide**, oxidation of, with chromic acid (OECHSNER DE CONINCK and COMBE), A., i, 347.
 mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
 dibromo-, formation of (JEFFREYS), A., i, 732.
- Salicylhydramide**, thermochemistry of (DELEFINE and RIVALS), A., ii, 727.
- Salicylic acid**, thermochemistry of (DELEFINE and RIVALS), A., ii, 727.
 and sodium salt, solubility of mixtures of (HOITSEMA), A., ii, 10.
 action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
 detection of, in beer and wine (ABRAHAM), A., ii, 341.
 detection of, in milk (BREUSTEDT), A., ii, 532.
 estimation of (FRESENIUS and GRÜNHUT), A., ii, 581.
- Salicylic acid**, copper salt, dissociation of, in solution (CALAME), A., ii, 145.
 sodium salt, heat of formation of (MASSOL), A., ii, 353.
 ethoxyphenylic salt (MERCK), A., i, 802.
 ω -hydroxyphenacetin salt of (HINSBERG), A., i, 496.
 and *o*-methoxybenzoic acid, methylic salts and amides of, relative stability of, towards alkalis (FISCHER), A., i, 262.
 methylic salt, estimation of (KREMERS and JAMES), A., ii, 192.
- α - and β -naphthyl salts of, viscosity of undercooled (TAMMANN), A., ii, 272.
- Salicylic acid**, 5-amino-, preparation of (FISCHER and SCHAAR-ROSENBERG), A., i, 283.
 5-chloro-, ethylic salt (MAZZARA), A., i, 700.
 3 : 5-dichloro- (MARTINI), A., i, 877.
 thio-, and salts, and dithio- (GATTERMANN), A., i, 518.
 dithio- (HENDERSON), A., i, 430.
- Salicylic series**, chloro-derivatives, thermochemistry of (RIVALS), A., ii, 204.
- Salicylonitrile**, bromonitro- [OH : Br : NO₂ = 2 : 4 : 5], and nitro- [OH : NO₂ = 2 : 6] (AUWERS and WALKER), A., i, 199.
- Salicyl-*p*-phenetide**, preparation of, and its acetate and benzoate (BOLEZZI), A., i, 358.
- Salicyl-O-phosphinic acid**, and its aniline salt and phenylhydrazide (MICHAELIS and KERKHOFF), A., i, 54.
- Saligenin**, bromo-, and dibromo- and acetyl derivatives (AUWERS and BÜTTNER), A., i, 37.
- Saline**, incrustation on limestone (HOFFMANN), A., ii, 110.
 sublimation from Vesuvius (FRANCO), A., ii, 600.
- Salipyrine**, velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
- Salite**. See **Diopside**.

- Saliva**, influence of various substances on the activity of (KÜBEL), A., ii, 603.
human, amount of, and percentage of thiocyanic acid in (KRUGER), A., ii, 165.
- Salmine**, hydrolytic products of (KOSSEL), A., i, 833.
- Salol**, three forms of, velocity of crystallisation of (TAMMANN), A., ii, 549.
fate of, in the living body (HUMNICKI), A., ii, 781.
- Salol-O-tetrachlorophosphine**, **Salol-O-oxychlorophosphine**, **Saloloxyposphazophenyl**, **Salol-O-phosphinic acid**, and its salts, dianilide dip-tolulide and diphenylhydrazide (MICHAELIS and KERKHOF), A., i, 54.
- Salt** on shore of Lake Ruzsanda, Hungary (KALECSINSZKY), A., ii, 161.
- Salts**, colloidal, as membrane-formers in dyeing (KRAFFT), A., ii, 472.
oceanic deposits of (VAN'T HOFF and DAWSON), A., ii, 759.
vaporised, electric conductivity of (SMITHELLS, DAWSON, and WILSON), A., ii, 722.
- Samandarin** (FAUST), A., i, 380.
- Sand** in the efflorescence on walls (VAN ERP), A., ii, 96.
- Sandalwood oil**, East Indian (SCHIMMEL and Co.; VON SODEN and MÜLLER), A., i, 924.
from *Santalum cynnorum* (SCHIMMEL and Co.), A., ii, 299.
- Sandstone** from Virginia (MILLER), A., ii, 769.
cemented by barium sulphate (CLOWES), A., ii, 761.
- Santalene** (VON SODEN and MÜLLER), A., i, 924.
- Santalin**, potassium salt and formula of (PERKIN), T., 443; P., 1899, 66.
- Santalol** (SCHIMMEL and Co.; VON SODEN and MÜLLER), A., i, 924.
- Santalylphthalic acid** (SCHIMMEL and Co.), A., i, 924.
- Santonin acid**, methylic salt, α - and β -oximes of (WEDEKIND), A., i, 631.
preparation of, from the oxime (WEDEKIND), A., i, 631.
specific rotation of, and conversion into *l*-desmotroposantonin (ANDREOCCI and BERTOLO), A., i, 301.
velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.
action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
the ferric chloride reaction with (BERTOLO), A., i, 930.
estimation of (KATZ), A., ii, 619.
- Santonin-oxime**, action of heat on (WEDEKIND), A., i, 631.
- d*-Santonous acid**, from reduction of *l*-desmotroposantonin (ANDREOCCI and BERTOLO), A., i, 301.
- Santonous acids**, ferric chloride reaction with (BERTOLO), A., i, 931.
- d*- and *l*-iso-Santonous acids**, m. p. and specific rotation of; also their separation (ANDREOCCI and ALESSANDRELLO), A., i, 931.
- Sap**. See Agricultural chemistry.
- Saponification** of fats, apparatus for (ANNAN), A., ii, 343.
- Sarcina rosea* extract, presence of a proteolytic enzyme in (GERET and HAHN), A., i, 95.
- Sarcomata**, composition of (PETRY), A., ii, 568.
- Sarcosine**, oxidation of (OECHSNER DE CONINCK), A., i, 509.
- Sardine oil**, saponification value of (FAHRION), A., ii, 711.
- Saturation curve** for mixtures of enantiomorphous isomerides (BRUNI), A., ii, 732.
- Sausage meat**, estimation of starch in (WELLER), A., ii, 703.
- Sawdust**, detection of, in flour (LE ROY), A., ii, 453.
- Saxifrageae*, distribution of hydrocyanic acid in the (HÉBERT), A., ii, 377.
- Scapolite** from Mexico (LENK), A., ii, 306.
- Scatole**. See 3'-Methylindole.
- Scatoleacetic acid**. See 3'-Methylindoleacetic acid.
- Schizothrix lardacea*, development of, in non-nitrogenous solutions (BOUILLIAC), A., ii, 238.
- Scleroclase**, artificial (SOMMERLAD), A., ii, 218.
- Scolesite**, vapour pressure of (TAMMANN), A., ii, 8.
- Scombrine**, separation of, from spermatozoa of mackerel (KURÁEFF), A., ii, 313.
hydrolytic products of (KOSSEL), A., i, 833.
- Scoparein**, formation and decomposition products of (PERKIN), P., 1899, 123.
- Scoparin**, composition, decomposition products, dyeing properties of, and relation to vitexin (PERKIN), P., 1899, 123.
action of potassium acetate on (PERKIN), T., 443; P., 1899, 66.
- Scopolamine** (commercial), chemistry of (PINNER), A., i, 178.
- Scopolamine**. See under Hyoscyne.
- Scopolamine** (inactive). See under Atropine.

- Scopoline.** See under *Oscine*.
- Scorodite**, artificial (METZKE), A., ii, 294.
- Sea water.** See *Water*.
- Sebacic acid** (*ipomic acid*), and its salts (MASSOL), A., ii, 80.
- amide of, preparation of (ASCHAN), A., i, 14.
- L*-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
- Secretion**, metabolism during (HENDERSON), A., ii, 774.
- Seed and seedling.** See *Agricultural chemistry*.
- Sekisanine**, from *Lycoris radiata* (MORISHIMA), A., i, 93.
- Selenium**, atomic weight of (LENHER), A., ii, 18.
- in Vesuvian products (MATTEUCCI and GIUSTINIANI), A., ii, 600.
- in impure hydrogen (SCHLAGDENHAUFFEN and PAGEL), A., ii, 475.
- spectrum of (DE GRAMONT), A., ii, 199.
- insoluble in anhydrous liquid ammonia (HUGOT), A., ii, 650.
- action of, on sulphuric acid (ADIE), P., 1899, 133.
- compounds (METZNER), A., ii, 364.
- Selenium tetrabromide**, double salts of, with amines (LENHER), A., ii, 19, 20.
- hydride. See *Hydrogen selenide*.
- monoxide, attempts to prepare (LENHER), A., ii, 20.
- dioxide, preparation of (DIVERS and HADA), T., 537.
- Selenious acid**, estimation of (NORTON), A., ii, 518.
- Amidoselenites**, non-existence of (DIVERS and HADA), T., 539; P., 1899, 101.
- Selenic acid**, preparation of (METZNER), A., ii, 21.
- Selenates**, action of hydrochloric acid on (TUNNELL and SMITH), A., ii, 744.
- sulphate and nitrate, for detection of alkaloids (BARTH), A., ii, 47.
- Selenium, separation of** :—
- separation of barium and tellurium from (JANNASCH and MÜLLER), A., ii, 60.
- separation of sulphuric and phosphoric acids from (JANNASCH and HEIMANN), A., ii, 60.
- Semicarbazide**, action of, on formaldehyde (THIELE and BAILEY), A., i, 109.
- Semiorthoxalic acid**, methylic and dimethylic diethylic salts, and the action of acetamide on the former (ANSCHÜTZ and STIEPEL), A., i, 573.
- Semiphenylhydrazone-oxalic acid**, methylic salt (ANSCHÜTZ and STIEPEL), A., i, 573.
- Semi-*p*-tolylimino-oxalic acid**, methylic salt (ANSCHÜTZ and STIEPEL), A., i, 573.
- Semseyite** from the Harz (SPENCER and PRIOR), A., ii, 431.
- Serin**, estimation of, in blood-serum (PATEIN), A., ii, 828.
- Serpentine.** See *Chrysotile*.
- Serum**, influence of carbonic anhydride and alkali on the bactericidal action of (HAMBURGER), A., ii, 603.
- blood-, preparation of glutolin from (FAUST), A., i, 466.
- determination of percentage volume of, in blood (STEWART), A., ii, 603.
- globulin, estimation of, in blood-serum (PATEIN), A., ii, 828.
- Sesamé oil**, detection of (KREIS; BREINL), A., ii, 824.
- detection of, in butter (LEONARD), A., ii, 190.
- detection of, in butter and margarine (SOLTSIEN), A., ii, 71.
- iodine number of (ZEGA and MAJSTOROVIC), A., ii, 820.
- Sesquiterpene**, from *Oleum cadi* (TROEGER and FELDMANN), A., i, 376.
- Setaria Italica*, presence of an active principle in (LADD), A., ii, 240.
- Sewage effluents**, estimation of oxygen in (GERLAND), A., ii, 697.
- Shells of *Crania*, *Terebratulina*, and *Waldheimia***, composition of (KUNCKELL), A., ii, 313.
- Sheep.** See *Agricultural chemistry*.
- Silicon** (VIGOUROUX), A., ii, 211.
- graphitoidal, preparation of (HYDE), ii, 653; (VIGOUROUX), A., ii, 746.
- reduction of alumina by, in chlorine (DUBOIN and GAUTIER), A., ii, 653.
- Silicides**, metallic (VIGOUROUX), A., ii, 211.
- Silicon tetramide** (LENGFELD), A., ii, 553.
- tetrachloride, preparation of (VIGOUROUX), A., ii, 746.
- octochloride, preparation of (GATTERMANN and ELLERY), A., ii, 418.
- diimide (LENGFELD), A., ii, 553.
- nitride, action of magnesium on (EIDMANN), A., i, 317.
- dioxide (*silica*), fibrous forms of, from Moravian serpentines (BAVIK), A., ii, 671.
- amount of, in Egyptian porcelain, and in glaze of Egyptian pottery (LE CHATELIER), A., ii, 751.
- action of, on mono-alkali salts of hydroxy-acids (HENDERSON, ORR, and WHITEHEAD), T., 554; P., 1899, 108.
- reduction of, by aluminium (FRANCK), A., ii, 103.

- Silicon dioxide (silica)**, estimation of, in ores (LEHNKERING), A., ii, 251.
estimation of, in Portland cement (SHIMER), A., ii, 520.
- Silicic acid**, colloidal, coagulation of (LINEBARGER), A., ii, 12.
- Silicates**, natural, alkaline reaction of; decomposition of, by water (CLARKE), A., ii, 109.
natural, solubility of, in water (STEIGER), A., ii, 496.
action of hydrogen sulphide on (DIDIER), A., ii, 596.
of the alkalis, hydrolysis of, in aqueous solution (KAHLENBERG and LINCOLN), A., ii, 95.
decomposition of, by boric anhydride (JANNASCH and WEBER), A., ii, 578.
detection of potassium in (COLE), A., ii, 521.
- Silicotungstic acid**, use of, as a test for alkaloids (BERTRAND), A., ii, 457.
- Silicon organic compounds**:—
Silicomexoxalic acid (GATTERMANN and ELLERY), A., ii, 418.
Silicon tetrethyl, preparation of (KIPPING and LLOYD), P., 1899, 174.
tetrethylamide (LENGFELD), A., ii, 554.
Triphenylsilicol, and its acetate (KIPPING and LLOYD), P., 1899, 174.
Triphenylsilicylether (KIPPING and LLOYD), P., 1899, 174.
- Silicon**, analysis of (BORNTRÄGER), A., ii, 695.
- Silk**, proteoid constituents of, action of acids on (WETZEL), A., i, 466.
- Silk-gelatin**, action of acids on (WETZEL), A., i, 466.
- Silkworm** excrement, amount of cellulose and pentosans in (MENOZZI), A., ii, 683.
- Sillimanite**, artificial (ZEMJATSKENSKY), A., ii, 111; (MOROZEWICZ), A., ii, 672.
- Silver**, native, from Sardina (TRAVERSO), A., ii, 759.
atomic weight of (BERTHELOT), A., ii, 207.
pure, preparation of (PFEIFFER; KUHN), A., ii, 366.
presence of, in sediment from copper refining (HOLLARD), A., ii, 452.
precipitated by cadmium, presence of cadmium in (SHENGLE and SMITH), A., ii, 749.
electrochemical equivalent of (KAHLE), A., ii, 358.
voltameter, deposition of silver in (KAHLE), A., ii, 347.
- Silver**, potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.
colloidal solutions of, coagulation of, by zinc chloride (STARK), A., ii, 644.
partition of, in lead-zinc mixtures (BANCROFT), A., ii, 470.
action of solutions of alkali chlorides on (BERTHELOT), A., ii, 288.
action of, on nitric acid (FREER and HIGLEY), A., ii, 480.
action of dilute nitric acid on (DIVERS), T., 93.
action of hydrogen sulphide on (PÉLABON), A., ii, 24.
action of, on sulphuric acid (ADIE), P., 1899, 133; (BERTHELOT), A., ii, 283.
- Silver amalgam**, heat of formation of (OGG), A., ii, 15.
- Silver salts**, action of magnesium on solutions of (BRYANT), A., ii, 289.
reduction of, by calcium carbide; alloys with calcium (TARUGI), A., ii, 749.
(haloid), solubility of, in alcohols (ROHLAND), A., ii, 144.
- Argentammonium chloride**, dissociation of, change of entropy in (MATIGNON), A., ii, 273.
chlorides and iodides, preparation and dissociation of (JARRY), A., ii, 738.
iodate, and periodates (ROSENHEIM and LIEBKNECHT), A., ii, 743.
nitrate, and oxide, preparation and thermochemistry of (BERTHELOT and DELÉPINE), A., ii, 748.
decomposition of hydrogen peroxide (BERTHELOT), A., ii, 149.
- Silverdiammine nitrate (HANTZSCH), A., ii, 215.
- Silver thioantimonite**, thiohypoarsenite, pyrothioarsenite, and thioarsenite (SOMMERLAD), A., ii, 215, 516.
arsenite (REICHARD), A., ii, 23.
subbromide, formation of, by action of light on silver bromide (LIESEGANG), A., ii, 720.
bromide, solubility of, in aqueous methylamine (JARRY), A., ii, 738.
and chloride, precipitated, equilibrium in (KÜSTER), A., ii, 206.
solubility of, in sodium thio-sulphate solutions (RICHARDS and FABER), A., ii, 288.
fused, dissociation coefficient in (LORENZ), A., ii, 269.
and iodide, electrolysis and heat of formation of (CZEPINSKI), A., ii, 268.

Silver bromide, chloride, and iodide, reduction of, by formaldehyde (VANI-NO), A., ii, 249.
 osmium bromide (ROSENHEIM and SASSERATH), A., ii, 665.
 chlorate and hypochlorite (FOERSTER and JORRE), A., ii, 280.
 compound with cupric hydroxide (SABATIER), A., ii, 654.
 chloride, action of light on (SONSTADT), P., 1898, 180.
 latent heat of fusion of (WEBER), A., ii, 725.
 solubility of, in alkali nitrite solutions (DIVERS), T., 85.
 iodide, action of light on, influence of silver on (SCHOLL), A., ii, 621.
 melting point and transition curves of (TAMMANN), A., ii, 636.
 molybdodates (CHRÉTIEN), A., ii, 363.
 nitrate, molecular weight of, in urethane (CASTORO), A., ii, 360.
 determination of polarisation in cells containing (HEIM), A., ii, 78.
 electromotive force required to electrolyse (BOSE), A., ii, 349.
 mixtures of, with copper nitrate, electrolysis of, application of principle of maximum work to (TOMMASI), A., ii, 412.
 dissociation of, in fused sodium or potassium nitrates (GORDON), A., ii, 347.
 action of heat on, and of nitric oxide on (DIVERS), T., 83; P., 1898, 221.
 equilibrium in systems containing silver amalgam, mercurous nitrate, and (OGG), A., ii, 14.
 solubility of ammonia in aqueous solutions of (KONOWALOFF), A., ii, 418.
 reactions of, in organic solvents (NAUMANN), A., ii, 423.
 compound of, with cupric hydroxide (SABATIER), A., ii, 654.
 hyponitrite, preparation of, from sodium nitrite (DIVERS and HAGA), T., 81; P., 1898, 221.
 preparation and properties of; action of heat on; nitrate-nitrite, nitrate-hyponitrite, and nitrite-hyponitrite (DIVERS), T., 104, 110; P., 1898, 224.
 osmiumate (BRIZARD), A., ii, 559.
 oxide, action of heat on; and suboxide (GUNTZ), A., ii, 418.
 reduction of, by aluminium (FRANCK), A., ii, 103.
sesquioxide (BERTHELOT), A., ii, 149.

Silver phosphate, pyrophosphate, sulphate and hydroxide, action of hydrogen on (COLSON), A., ii, 215.
 metaphosphate, heat of solution of (TANATAR), A., ii, 417.
pentametaphosphimate, *amidotetrimidopentaphosphate*, *trimidotetraphosphate*, *hexametaphosphimate*, and *amidohexamidoheptaphosphate* (STOKES), A., ii, 93, 94.
 selenite (LENHER), A., ii, 19.
 sulphate or dithionate, compound of cupric hydroxide with (SABATIER), A., ii, 654.
peroxysulphate (MULDER), A., ii, 483.
 sulphide, action of hydrogen on (PÉLABON), A., ii, 24.
 action of sulphuric acid on (BERTHELOT), A., ii, 283.
disulphide (HANTZSCH), A., ii, 215.
 sodium thiosulphates (RICHARDS and FABER), A., ii, 228.
Silver organic compounds :—
 Methylammonio-silver bromide, and iodides, preparation and dissociation of (JARRY), A., ii, 738.
 Silver acetylide, and its compounds with silver nitrate, sulphate, chloride, and iodide (BERTHELOT and DELÉPINE), A., i, 841.
 potassium cyanide and its decomposition (BERTHELOT), A., i, 846.
 action of hydrogen sulphide or sodium sulphide on solutions of (BERTHELOT), A., ii, 421.
Silver, estimation and separation of :—
 estimation of, in presence of platinum, copper, zinc, nickel, or cobalt (KOLLOCK), A., ii, 811.
 deposition of, electrolytically (KÜSTER and VON STEINWEHR), A., ii, 125.
 estimation of, in presence of cadmium or iron (KOLLOCK), A., ii, 811.
 separation of antimony and arsenic from (ATKINSON), A., ii, 615.
 separation of copper from (REVAY), A., ii, 127.
Silver-fir. See Agricultural chemistry.
Sinapoline. See Diallylcarbamide.
Siphonia elastica, caoutchouc from (LINDER), A., ii, 508.
Skin, diffusion of gases through (HILL), A., ii, 437.
 elimination of water and carbon dioxide by the (BARRATT), A., ii, 313.
Slag, basic, analysis of (HERZFELDER), A., ii, 808.
 estimation of phosphoric acid in (ASCHMAN), A., ii, 807.

- Slag, basic**, estimation of citrate-soluble phosphoric acid (FREUNDLICH), A., ii, 331; (MAERCKER), A., ii, 807.
valuation of (DAFERT and REITMAIR), A., ii, 331.
See also Agricultural chemistry.
- Slags**, estimation of sulphur in (HERTING), A., ii, 804.
- Smithsonite**. See Calamine.
- Snails**, functions of the so-called liver of (BIEDERMANN and MORITZ), A., ii, 438.
- Snake-venom**, cause of antagonism of toxins and antitoxins of (MARTIN and CHERRY), A., ii, 234.
digestive action of echidnase on (PHISALIX), A., ii, 782.
mode of action of antitoxin of (MARTIN), A., ii, 782.
- Soap** solutions, colloidal nature of, and conductivity (KAHLENBERG and SCHREINER), A., ii, 202.
analysis of (HEFELMANN and STEINER), A., ii, 190.
estimation of fat, and Hohner's number in (POSSETTO), A., ii, 72.
estimation of phenols in the presence of (SPALTEHOLZ), A., ii, 64.
- cis-Sobrerithritol*, chlorhydrin (WAGNER and SLAWINSKI), A., i, 766.
- Sod oil**, analysis of (HOPKINS, COBORN, and SPILLER), A., ii, 534.
- Sodalite**, artificial (MOROZEWICZ), A., ii, 764.
- Sodio- γ -acetyldiethylacetoacetic acid**.
See γ -Acetyldiethylacetoacetic acid, sodio-.
- Sodiophenylacetoacetic acid**, ethylic salt, and phenylhydrazone (BECKH), A., i, 212.
- Sodium**, spectrum of, in its fused salts (DE GRAMONT), A., ii, 198.
spectrum of, method of reversing (KREUSLER), A., ii, 717.
vapour, incandescent, anomalous dispersion of (BECQUEREL), A., ii, 266.
effect of pressure on melting point curve of (TAMMANN), A., ii, 636.
ion velocity of, in flames (WILSON), A., ii, 723.
burner (PULFRICH), A., ii, 148.
amount of, in Egyptian porcelain, and in glaze of Egyptian pottery (LE CHATELIER), A., ii, 751.
absorption of nitrogen by mixtures of magnesium, lime, and (HEMPFEL), A., ii, 594.
action of, on hydrazine (DE BRUYN), A., ii, 745.
- Sodium amalgams** (POCKLINGTON), A., ii, 200.
- Sodium amalgams** of different concentrations, electro-motive force between (CADY), A., ii, 395.
specific volumes of (MAEY), A., ii, 547.
action of, on solutions of alkali nitrates or nitrites (DIVERS), T., 87; P., 1898, 222.
- Sodium ammonia** (MOISSAN), A., ii, 152.
compound of, with arsenic and ammonia (HUGOT), A., ii, 151.
- Sodium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
taste of (HÖBER and KIESOW), A., ii, 207.
conductivity of mixed solutions of potassium salts and (BARMWATER), A., ii, 396.
- Sodium aluminate**, removal of lime and suspended matters from water by (MABERY and BALTZLEY), A., ii, 476.
azoimide, and auroazoimide (CURTIUS and RISSOM), A., ii, 92.
orthomomothioxyarsenate (McCAY), A., ii, 96.
mono- and di-thioxyarsenates (McCAY), A., ii, 745.
bismuthate, preparation of (DEICHLER), A., ii, 430.
perborate, action of water on (MELIKOFF and PISSARJEWSKY), A., ii, 31.
decomposition of (TANATAR), A., ii, 553.
bromide, spark spectrum of (DE GRAMONT), A., ii, 137.
heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
conductivity of solutions of, in nitrobenzene, benzonitrile, or furfuran (EULER), A., ii, 462.
carbide (MOISSAN), A., i, 241.
carbonate, natural formation of (MELIKOFF), A., ii, 229.
in the efflorescence on walls (VAN ERP), A., ii, 96.
thermal change on diluting concentrated solutions of (POLLOK), P., 1899, 8.
reduction of, by aluminium (FRANCK), A., ii, 102.
- hydrogen carbonate** from Vesuvius (MATTEUCCI), A., ii, 600.
detection of, in presence of sodium carbonate (KUBIL), A., ii, 57.
- percarbonate**, preparation of, and heat of decomposition of (TANATAR), A., ii, 482.

Sodium chlorate, electrolytic formation of (VAUBEL), A., ii, 88; (WOHLWILL), A., ii, 214.
 crystallisation of, in a magnetic field, and in dextrose solution (WRIGHT and KREIDER), A., ii, 265.
perchlorate, electrolytic preparation of (FOERSTER), A., ii, 88; (WINTERER), A., ii, 366.
 chloride in steam from brine pans of Salies-de-Béarn (GARRIGOU), A., ii, 414.
 spark-spectra of (DE GRAMONT), A., ii, 137.
 electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
 transference ratio of, with various septa (BEIN), A., ii, 399.
 boiling point of solutions of, containing cadmium sulphate (GORDON, HENDERSON, and HARRINGTON), A., ii, 141.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 depression of freezing point of water by (RAOULT), A., ii, 204.
 densities and refractive indices of solutions of (CONROY), A., ii, 717.
 densities of solutions of (HAHN), A., ii, 23; (BARNES and SCOTT), A., ii, 406; (DE COPPET), A., ii, 590.
 contraction of aqueous solutions of, on dilution (WADE), T., 256, 263; P., 1899, 8.
 surface tension of solutions of (LINEBARGER), A., ii, 469; (FORCH), A., ii, 641.
 molecular depression of vapour pressure of solutions of (DIETERICI), A., ii, 403.
 osmotic pressures of solutions of (PONSOT), A., ii, 591.
 equilibrium between water, succinonitrile and (SNELL), A., ii, 408.
 absorption of water by, and hydrates of (BUSNIKOFF), A., ii, 409.
 crystalline form of, influence of dissolved substances on (ORLOFF), A., ii, 654.
 influence of ingestion of, on proteid metabolism (STRAUB), A., ii, 372.
 and nitrate, solubilities of mixtures of, with potassium chloride or nitrate (SOCH), A., ii, 84.
 and sulphate, mixture of, transition point of (MEYERHOFFER and SAUNDERS), A., ii, 7.

Sodium chloride and sulphate, mixture of, and chromate, carbonate, thio-sulphate, bromide and phosphate, transition temperatures of (RICHARDS and BRIGGS), A., ii, 354.
 aluminium chloride, conductivity of aqueous solutions of (JONES and OTA), A., ii, 587.
 osmium hexachloride, and bromide (ROSENHEIM and SASSERATH), A., ii, 665.
 zinc chloride, and zinc or cadmium bromide, conductivity of solutions of (JONES and KNIGHT), A., ii, 628.
 hypochlorite, crystalline (MUSPRATT and SMITH), A., ii, 553.
 electrolytic formation of (WOHLWILL), A., ii, 213.
 preparation and stability of strong solutions of (MUSPRATT and SMITH), A., ii, 281.
 stability of solutions of, in presence of caustic soda (THOMSEN), A., ii, 476.
 conversion of, into chlorate (FOERSTER and JORRE), A., ii, 278.
 difluoriodate (WEINLAND and LAUENSTEIN), A., ii, 364.
 hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 influence of, on the hydration of calcium oxide (ROHLAND), A., ii, 596.
 solution of, in water (DIVERS), T., 97.
 action of, on benzaldehyde or benzylic benzoate (KOHN and TRANTOM), T., 1155; P., 1899, 194.
 aluminate, phosphate or fluoride, removal of lime or magnesia from natural waters by (GRIFFIN), A., ii, 655.
 hydroximidosulphonate and hydroxy-amidosulphonate, formation of, in preparation of hyponitrite (DIVERS and HAGA), T., 78; P., 1898, 221.
 iodate and hypiodite, formation of (PÉCHARD), A., ii, 593.
periodate, estimation and properties of (PÉCHARD), A., ii, 477.
 iodide, spark spectrum of (DE GRAMONT), A., ii, 137.
 conductivity of, in nitrobenzene, benzonitrile or furfuran (EULER), A., ii, 462.
 lead iodide (MOSNIER), A., ii, 222.
 nitrate, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 thermal change on diluting concentrated solutions of (POLLOK), P., 1899, 8.

- Sodium** nitrate, mixtures of, with lithium and potassium nitrates, melting points of (CARVETH), A., ii, 141.
 surface tensions of solutions of (FORCH), A., ii, 641.
 densities of solutions of (BARNES and SCOTT), A., ii, 406.
 electrolytic reduction of (TOMMASI), A., ii, 138.
 deliquescence of (KORTRIGHT), A., ii, 644.
 (*Chili saltpetre*), amount of perchlorate in (ZAHARIA), A., ii, 799.
 detection of perchlorate in (NYSSENS), A., ii, 327.
 estimation of perchlorate in (FOERSTER), A., ii, 57; (FREYTAG), A., ii, 179; (AHRENS and HETT), A., ii, 245; (BLATTNER and BRASSEUR), A., ii, 328.
 See also Agricultural chemistry.
 praseodymium nitrate (SCHEELE), A., ii, 99.
 nitrite, preparation of (DIVERS; GROVES), T., 85; P., 1898, 222.
 manufacture and estimation of (DARBON), A., ii, 745.
 rhodium nitrite, and *octorhodite* (JOLY and LEIDIE), A., ii, 34.
 hyponitrite, action of heat on; molecular weight and constitution of (DIVERS), T., 102, 122; P., 1898, 224.
 formed from nitrite or nitrate by sodium amalgam (DIVERS), T., 87, 96; P., 1898, 222, 223.
 oxide, heat of formation of (MOISSAN), A., ii, 352.
 heats of formation and solution of (DE FORCRAND), A., ii, 588.
 suboxide, monoxide and dioxide (DE FORCRAND), A., ii, 95.
 and peroxide, heats of formation of (DE FORCRAND), A., ii, 141.
 phosphate, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
 hydrogen phosphate, dehydration of (WHITELOCK and BARFIELD), A., ii, 747.
 reaction of, with phenolphthalein (BRUNNER), A., ii, 152.
 metaphosphate, reduction of, by aluminium (FRANCK), A., ii, 102.
 trimetaphosphate, preparation and heat of solution of (TANATAR), A., ii, 416.
 magnesium pyrophosphate (BERTHELOT and ANDRÉ), A., ii, 156.
- Sodium** tetrametaphosphimate, and acid salt, trimidiotetraphosphate, diimidotriphosphate, pentametaphosphimates, hexametaphosphimate, and amidoheximidohaptaphosphate (STOKES), A., ii, 93, 94.
 phosphiodate and molybdiodate (CHRÉTIEN), A., ii, 363.
 selenide and polyselenide (HUGOT), A., ii, 650.
 silicoaluminate (FRIEDEL), A., ii, 564.
 hydrated (FRIEDEL), A., ii, 563.
 sulphate, natural, from Hungary (KALECSINSZKY), A., ii, 161.
 in the efflorescence on walls (VAN ERP), A., ii, 96.
 preparation of, from sodium chloride (KRUTWIG and DERNONCOURT), A., ii, 214.
 galvanic polarisation in solutions of (JAHN), A., ii, 542.
 thermal change on diluting saturated solutions of (POLLOK), P., 1899, 8.
 surface tension of solutions of (FORCH), A., ii, 641.
 densities of solutions of (BARNES and SCOTT), A., ii, 406.
 equilibrium between potassium chloride, sodium potassium sulphate, and (MEYERHOFFER and SAUNDERS), A., ii, 410.
 equilibrium between ethylic alcohol, water, and (DE BRUYN), A., ii, 591.
 and ammonium nitrate, separation of (ROCA), A., ii, 358.
 antimony sulphate (GUTMANN), A., ii, 34.
 potassium sulphate (MEYERHOFFER and SAUNDERS), A., ii, 410.
 sulphide, action of, on potassium silver, potassium mercuric, or potassium zinc cyanides (BERTHELOT), A., ii, 422.
 sulphite, absorption of nitric acid by solutions of (DIVERS), T., 82 P., 1898, 221.
 silver thiosulphates (RICHARDS and FABER), A., ii, 288.
 sulphonosmate, and osmisulphites (ROSENHEIM and SASSERATH), A., ii, 664, 665.
 pertantalate (MELIKOFF and PISSARJEWSKY), A., ii, 492.
 tellurides and sulphides, by action of sodammonium on tellurium and sulphur (HUGOT), A., ii, 747.
 tetrationstate, reduction of (GRANGER), A., ii, 32.
 prtungstate, preparation of (THOMAS), A., ii, 489.

Sodium and sodium diammonium monooxystoperoiodate (ROSENHEIM and LIEBKNECHT), A., ii, 744.

hexaoxystoperoiodate (ROSENHEIM and LIEBKNECHT), A., ii, 743.

peruranate, action of aluminium hydroxide on (MELIKOFF and PISSARJEWSKY), A., ii, 31.

uranyl salts, conductivity of solutions of (DITTRICH), A., ii, 629.

Sodium organic compounds :—

Sodium acetylde (MOISSAN), A., i, 241.

amyloxide, action of fermentation amylic alcohol on (GUERBET), A., i, 472.

or ethoxide, decomposition of chloro-, bromo-, or iodo-benzene by (LÖWENHERZ), A., ii, 639.

isobutyloxide, action of isobutylic alcohol on (GUERBET), A., i, 472.

ethoxide, action of ethylic alcohol on (GUERBET), A., i, 472.

ethyl pyrosulphite and sulphite, formation of (DIVERS and OGAWA), T., 535.

ferrocyanide, composition and solubility of (CONROY), A., i, 2.

methoxide and benzoyloxide, action of, on benzaldehyde (KOHN and TRANTOM), T., 1155; P., 1899, 194.

vanadium thiocyanate (CIOC), A., i, 322.

Sodium, estimation of :—

estimation of, in rocks (BONJEAN), A., ii, 695.

estimation of, in urine (HERRINGHAM), A., ii, 333.

Soils, estimation of calcium carbonate in (MAYER), A., ii, 385; (STUTZER and HARTLEB), A., ii, 521.

estimation of lime, potash, and phosphoric acid in (MAXWELL), A., ii, 521.

See also Agricultural chemistry.

Solanaceæ, the alkaloids of the (PINNER), A., i, 177.

Solanine, and its hydrolysis (CAZENEUVE and BRETAU), A., i, 551.

detection of (BAUER), A., ii, 392.

Solubility. See Solution.

SOLUTION, hydrate theory of (FLAWITZKY), A., ii, 730.

Solution, equilibrium in, and dilution (WEGSCHEIDER), A., ii, 590.

vapour pressure and heat of dilution of (SCHILLER), A., ii, 357.

of gases, osmotic pressure in (KISTIAKOWSKI), A., ii, 730.

in liquids, invasion and evasion coefficients in (BOHR), A., ii, 641.

SOLUTION :—

Solution of naphthalene in β -naphthol, freezing points of (BRUNI), A., ii, 356.

distribution ratio of acetic acid between benzene and water (WADDELL), A., ii, 144.

Solubility at different temperatures, determination of (PAWLEWSKI), A., ii, 405.

of mixed electrolytes containing no common ion (NOYES), A., ii, 9.

of organic compounds in water (VAUBEL), A., i, 317.

mutual, of organic liquids and water (HERZ), A., ii, 83.

use of, in recognition of racemic compounds (ROOZEBOOM), A., ii, 733.

of racemic compounds (ROOZEBOOM), A., ii, 276.

of racemic compounds and of enantiomorphic mixtures (LADENBURG; POPE), T., 466; P., 1899, 73.

of racemic compounds, pseudoracemic mixtures, and inactive conglomerates (ROOZEBOOM), A., ii, 401.

of mixed salts (SOCH), A., ii, 84.

of salts, relation between electroaffinity and (ABEGG and BODLÄNDER), A., ii, 542.

of mixtures of two salts with one common ion (HOITSEMA), A., ii, 10.

of haloid salts in alcohols (ROHLAND), A., ii, 144.

of the normal acids of the oxalic series (LAMOUROUX), A., i, 479.

of ammonia in aqueous solutions of silver nitrate (KONOWALOFF), A., ii, 418.

of bromine in water (WINKLER), A., ii, 742.

of benzoic acid in solutions of sodium formate or acetate (NOYES and CHAPIN), A., ii, 274.

of benzylidene compounds of hydroxyacids, in water, methylic or ethylic alcohols (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 904.

of cesium and rubidium persulphates (FOSTER and SMITH), A., ii, 747.

of calcium hydroxide in solutions of ammonium chloride (NOYES and CHAPIN), A., ii, 405.

of gold in solutions of alkali cyanides, influence of oxidising agents on (NOELTING and FOREL), A., ii, 755.

of hydrates of ferrous potassium sulphate (KÜSTER and THIEL), A., ii, 753.

of iodine, in dilute solutions of potassium iodide (NOYES and SEIDENSTRAKER), A., ii, 11.

SOLUTION :—

- Solubility** of lime in water and in sugar solutions (WEISBERG), A., ii, 748.
 of substituted malonic and succinic acids (MASSOL and LAMOUREUX), A., i, 479.
 of silver acetate, propionate, and *isobutyrate* (ARRHENIUS), A., ii, 360.
 of silver chloride or iodide in liquid ammonia, and of bromide in aqueous methylamine (JARRY), A., ii, 738.
Solutions, aqueous, changes of volume due to dilution of (WADE), T., 254 ; P., 1899, 7.
 colloidal, crystallisation of (KRAFFT), A., ii, 472.
 diffusion of light by (SPRING), A., ii, 585.
 boiling points of (KRAFFT), A., ii, 470.
 speed of coagulation of (LINEBARGER), A., ii, 12.
 of gold, silver or arsenious sulphide, coagulation of, by zinc chloride (STARK), A., ii, 644.
 mercurial, vapour pressure of (CADY), A., ii, 395.
 solid, of menthol in thymol (GARELLI and CALZOLARI), A., ii, 732.
 of saturated and unsaturated open-chain compounds (BRUNI and GORNI), A., ii, 731.
 and liquid, of chloroacetic acid and glycollic acid in naphthalene (CADY), A., ii, 405.
 saturated, thermal changes on dilution of (POLLOK), P., 1899, 8.
 supersaturated velocity of crystallisation of (WILDERMAN), P., 1899, 175.
Sorbitol, action of hydrogen peroxide on, in presence and absence of iron (FENTON and JACKSON), T., 10 ; P., 1898, 240.
 a new sugar accompanying (VINCENT and MEUNIER), A., i, 185.
d-**Sorbitol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
Sorbose bacterium. See Bacterium.
Specific gravity. See Density.
Specific heat. See Thermochemistry.
Specific rotation. See Photochemistry.
Spectrum. See Photochemistry.
Spermine, effects of administration of, on animal metabolism (POEHL), A., ii, 502.
Sperryite from N. Carolina (HIDDEN and PRATT), A., ii, 301.
Sphærite from Moravia (KOVÁČ), A., ii, 669.
Sphene from Mexico (LENK), A., ii, 306.
Spike, oil of, composition of (SCHIMMEL and Co.), A., i, 299.

- Spinel** from Inverness-shire (CLOUGH and POLLARD), A., ii, 667.
 from Sweden (PETRÉN), A., ii, 759.
 artificial (MOROZEWICZ), A., ii, 762.
 formation of, in magmas (PRATT), A., ii, 758 ; (MOROZEWICZ), A., ii, 762.
Spirits, detection of caramel in (CRAMP-
 TON and SIMONS), A., ii, 530.
 detection of methylic alcohol in (TRILLAT), A., ii, 387.
 “**Spiritus Cochleariæ**,” preparation and examination of (GADAMER), A., ii, 456.
Spleen, diminution of iron in, during pregnancy (CHARRIN), A., ii, 773.
Spruce-fir. See Agricultural chemistry.
Stable manure. See Agricultural chemistry.
Standard solutions, protection of (STEINFELS), A., ii, 380.
Stannic and **Stannous**. See under Tin.
Staphisagroidine and **Staphisagroine** (AHRENS), A., i, 652.
Staphylococcus aureus, action of, on dextrose and on biliverdin, bilirubin, and hæmoglobin (HUGOUNENQ and DOYON), A., ii, 376.
Starch, formation of, from carbohydrates absorbed by roots of plants (LAURENT), A., ii, 173.
 formation of, by *Aspergillus niger*, and its specific rotatory power (TANRET), A., ii, 170.
 formation of, in plants, and relation to diastase (MEYER), A., ii, 321.
 soluble (WRÓBLEWSKI), A., i, 324.
 constitution of (BROWN and MILLAR), T., 336 ; P., 1899, 14.
 molecular weight of (FRIEDENTHAL), A., i, 851.
 hydrolysis of, with oxalic acid (BROWN and MILLAR), T., 307 ; P., 1899, 12.
 nitration and recovery of (BROWN and MILLAR), T., 309 ; P., 1899, 13.
 acetylation of (SKRAUP and HAMBURGER), A., i, 852.
 action of amylase on (PETIT), A., i, 559.
 barley, action of diastase on (LING), A., ii, 187.
 hydrolysis of, by malt diastase (BROWN and MILLAR), T., 286 ; P., 1899, 11.
 and “soluble” starch, action of yeast-extract on (BUCHNER and RAPP), A., ii, 606.
 digestion of, in plants (DU SABLON), A., ii, 239.
 action of sodium peroxide on (WRÓBLEWSKI), A., i, 325.

- Starch**, formation of furfuraldehyde from (SESTINI), A., i, 103.
 solution of, effect of iodine on the freezing point of (FRIEDENTHAL), A., i, 852.
 potato-, influence of manure on the production of (DEHERAIN), A., ii, 687.
 maize, detection of, in wheat flour (BAUMANN), A., ii, 703.
 wheat-, digestibility of residues of (SCHULZE), A., ii, 509.
 estimation of, by takadiastase (STONE and WRIGHT), A., i, 95.
 estimation of, in sausage meat (WELLER), A., ii, 703.
 zinc iodide solution, preparation of (SEYDA), A., ii, 342.
- Starfish**, composition and manurial value of (FIELD), A., ii, 690.
- Stars**, oxygen in atmosphere of (GILL), A., ii, 718.
 spectra and temperature of (LOCKYER), A., ii, 4, 718.
- Staurolite** from N. Carolina (HIDDEN and PRATT), A., ii, 301.
- Steam**, specific volumes, latent and total heat, and entropy of (STARKWEATHER), A., ii, 270.
- Stearamide**, preparation of (ASCHAN), A., i, 14.
- Stearic acid** (*hexadecylacetic acid*) in ancient cements (DÖRNER), A., ii, 554.
 physical constants of (SCHEIJ), A., i, 668.
 volatilisation of, in compressed ethylene (VILLARD), A., ii, 144.
 melting point of, influence of pressure on (HULETT), A., ii, 469.
 and sodium salt, melting points of, and temperature of solidification of solutions of (KRAFFT), A., ii, 471.
 solidifying points of mixtures of, with palmitic acid (VISSER), A., i, 255.
 molecular weight of, in elaidic acid (BRUNI and GORNI), A., ii, 731.
 action of acetic anhydride on; also anhydride (ALBITZKY), A., i, 862.
 estimation of (TWITCHELL), A., ii, 69.
 separation of, from other fatty acids (HOLZMANN), A., ii, 68.
- Stearic acid**, potassium salt, boiling point of solutions of (KRAFFT), A., ii, 471.
 amylic salt, density, specific rotation, and molecular volume of (FRANKLAND), T., 358.
- Stearic acid**, chloro- (ALBITZKY), A., i, 861.
- Steel**. See under Iron.
- Stelznerite** from Chili (ARZRUNI, THADÉKFF, and DANNENBERG), A., ii, 563.
- Stereocaulic acid**, from *Stereocaulon pileatum* and *Parmelia omphalodes* (ZOFF), A., i, 717.
- Stereochemistry** in relation to physiology (FISCHER), A., ii, 169.
 of nitrogen (POPE and PEACHEY), T., 1127; P., 1899, 192.
- Stereoisomerides**, equilibria of (BANCROFT), A., ii, 411.
- Sterilisation** of liquids by kieselguhr filter (HAUSSER), A., ii, 569.
- Stictaurin**, from *Sticta aurata*, *Candelaria vitellina*, *C. concolor*, and *Gyalolechia aurella*, and probable identity with dipulvic acid (ZOFF), A., i, 716.
- Stilbene** (*s-diphenylethylene*), formation of (GOLDSCHMIEDT and KNÖPFER), A., i, 141.
 molecular weight of, in azobenzene solution (BRUNI and GORNI), A., ii, 731.
 mixtures of, with dibenzyl, freezing points of; cryoscopic behaviour of, in benzylniline solution (GARELLI and CALZOLARI), A., ii, 732.
 dichloride, equilibrium of stereo-isomeric forms of (BANCROFT), A., ii, 145.
- Stilbenediol**, and its α - and β -diacetyl derivatives (THIELE), A., i, 609.
- Still**, new form of, for preparing sterilised water (GAWALOWSKI), A., ii, 515.
- Still-head**, forms of, for fractional distillation (YOUNG), T., 684; P., 1899, 147.
- Stolpenite** from Moravia (KOVÁŘ), A., ii, 671.
- Stomach contents**, estimation of hydrochloric acid in (LEO), A., ii, 516; (SIRINGO), A., ii, 803.
- Straw**. See Agricultural chemistry.
- Streptococcus pyogenes*, action of, on dextrose (HUGOUNENQ and DOYON), A., ii, 377.
- Strigovite** from Minnesota (BERKEY), A., ii, 371.
- Strontianite** from Bohemia (EICHELEITER), A., ii, 371.
- Strontium**, metallic (LENGYEL), A., ii, 219.
- Strontium salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- Strontium arsenide**, preparation of (LEBEAU), A., ii, 655.
 azoimide (CURTIUS and RISSOM), A., ii, 92.
 carbonate, reduction of, by aluminium (FRANCK), A., ii, 102.

- Strontium chloride**, heat of dilution of (DUNNINGTON and HOGGARD), A., ii, 728.
 contraction of aqueous solutions of, on dilution (WADE), T., 270; P., 1899, 8.
 cadmium chloride, conductivity of solutions of (JONES and KNIGHT), A., ii, 628.
 uranium chloride and bromide (ALOY), A., ii, 556.
 lead iodide (MOSNIER), A., ii, 222.
 hydroxide, electrolysis of aqueous solutions of (GLASER), A., ii, 79.
 molybdiolate (CHRÉTIEN), A., ii, 363.
 hyponitrite, and hyponitrosoacetate (DIVERS), T., 117; P., 1898, 224.
 sulphide, crystalline (MOURLOT), A., ii, 97.
 phosphorescent (MOURELO), A., ii, 97, 98, 336, 420, 484.
hexatungstoperiodate (ROSENHEIM and LIEBKNECHT), A., ii, 744.
- Strontium, estimation and separation of:**
 estimation of, in presence of calcium and barium (KNOBLOCH), A., ii, 182.
 separation of, from barium and calcium in mixture of sulphates, theory of (MORGAN), A., ii, 627.
- Strophanthidin** (KOHN and KULISCH), A., i, 159.
- Strophanthin**, and its acetyl derivative (KOHN and KULISCH), A., i, 159.
 presence of, in Algerian oleander (DUBIGADOUX and DURIEU), A., ii, 325.
- Strychnic acid**, ethyl and benzyl betaines of (MOUFANG and TAFEL), A., i, 310.
- Strychnine**, action of bromacetophenone on (SCHMIDT), A., i, 5.
 action of sulphuric acid on (BAILEY and LANGE), A., ii, 194.
 action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
 azoimide (POMMERHNE), A., i, 88.
heptiodide (PRESCOTT), A., i, 90.
d- and *l*-mandelates (McKENZIE), T., 967.
 tartrates, specific gravity and rotation formulæ, and conversion temperature of (LADENBURG and DOCTOR), A., i, 310.
 detection of (SEYDA), A., ii, 344.
 separation of brucine from (STOEDER), A., i, 715.
- Strychnine-like alkaloid** from a corpse (MECKE and WIMMER), A., i, 311.
- Sturine**, hydrolytic products of (KOSSEL), A., i, 833.
- Styrene** (*cinnamene*, *phenylethylene*), from xanthorrhoea resin oil (SCHIMMEL and Co.), A., i, 63.
 and bromo- and chloro-derivatives (JOCITSCH), A., i, 748.
 bromo-, and *dichloro*- (JOCITSCH and FAWORSKY), A., i, 786.
azonitro-, polymerisation of, by action of ethylic sodiummalonate (HERRMANN and VORLÄNDER), A., i, 812.
ω-nitro-, *ω*-*m*-dinitro-, *ω*-*o*-dinitro-potassium salt, and *ω*-*p*-dinitro- (THIELE), A., i, 584.
- Metastyrene**, formation of (HERRMANN and VORLÄNDER), A., i, 812.
- Suberamide** (ASCHAN), A., i, 14.
- Suberic acid**, and potassium and potassium hydrogen salts (MASSOL), A., ii, 80.
l-amylic salt, molecular rotation of (WALDEN), A., ii, 622.
- Suberone**, formation of, from *α*-hydroxycycloheptanecarboxylic acid (WILLSTÄTTER), A., i, 26.
- Submaxillary gland**, metabolism of the (HENDERSON), A., ii, 774.
- Substance**, m. p. 112°, obtained from *tribromodinitrobenzene* by action of sodium ethoxide (JACKSON and KOCH), A., i, 677.
 m. p. 138—140° and 154—155°, from campheride (CIAMICIAN and SILBER), A., i, 537.
 m. p. 156°, from action of dry ammonia on nitroso-oreoselone (SCHMIDT, JASOY, and HAENSEL), A., i, 378.
 m. p. 178—180°, from action of alkali hydroxide on *fabianaresen* (KUNZ-KRAUSE), A., i, 449.
 m. p. 180°, from reduction of *santonin-oxime* (WEDEKIND), A., i, 631.
 m. p. 183°, from oxidation of *trimethylbrazilin* (GILBODY and PERKIN), P., 1899, 28.
 $\text{CH}_2\text{S}_2\text{Cu}_2$ and $\text{C}_2\text{H}_5\text{S}_2\text{Cu}_2$, from action of methylene thiocyanate on ethylic cupracetoacetate (KOHLE), A., i, 737.
 $\text{C}_2\text{H}_3\text{O}_3\text{N}_2\text{Br}$ and $\text{C}_2\text{H}_3\text{O}_3\text{N}_2\text{Br}_3$, from action of bromine on leuco-salts of ethylnitrolic acid (GRAUL and HANTZSCH), A., i, 188.
 $\text{C}_4\text{H}_{10}\text{O}_5\text{N}_4$, from action of alcohol on guanidinecarboxylazide (THIELE and UHLFELDER), A., i, 119.
 $\text{C}_5\text{H}_3\text{O}_2\text{Cl}_3$, from methylphloroglucinol and chlorine (SCHNEIDER), A., i, 680.
 $\text{C}_5\text{H}_7\text{O}_2\text{NCl}_2$ and $\text{C}_5\text{H}_9\text{O}_2\text{N}_2\text{Cl}_2$, from action of hydroxylamine on *trichlor-ethylideneacetone* (SALKIND), A., i, 733.

- Substance**, $C_3H_9O_2Cl$, from action of water on the chlorhydrin of isoprenerythritol (MOKIEWSKY), A., i, 726.
- $C_5H_{10}O_2N_6 + \frac{1}{2}H_2O$, from condensation of semicarbazide with formaldehyde (THIELE and BAILEY), A., i, 109.
- $C_6H_6O_5Br_2, H_2O$ and $C_6H_6O_5Br_2, 2H_2O$, from action of bromine on the acids formed by reduction of dehydromucic acid (HILL and WHEELER), A., i, 576.
- $C_6H_9N_2$, from acetylacetone and semicarbazide (BOUVEAULT), A., i, 456.
- $C_6H_9O_4N$, from action of methyl alcoholic ammonia on lævulose; also its tetracetyl derivative (DE BRUYN), A., i, 732.
- $C_6H_{10}ON_2Cl_2$, from action of hydrochloric acid on mesitylnitrimine (HARRIES and GLEY), A., i, 567.
- $C_6H_{12}ON_2$ or $C_6H_{11}O_2N$, from action of potash on allylamine dibromide (CHIARI), A., i, 326.
- $C_7H_7O_3Br$, and its barium salt, obtained from tetrabromofillic acid (BOEHM), A., i, 805.
- $C_8H_6O_3NBr_3$, obtained by action of fuming nitric acid on tribromo-xyleneol (AUWERS and RAPP), A., i, 30.
- $C_8H_7O_2Br_3$, obtained from tribromo-xyleneol (AUWERS and RAPP), A., i, 30.
- $C_8H_7NS_2$, from dimethylaniline and sulphur (MÖHLAU and KLOPPER), A., i, 240.
- $C_8H_8O_4NBr$, from action of bromine on ethylic 2-hydroxy- Δ^2 -4-hydro-pyridone-3-carboxylate (GUTHZEIT and LASKA), A., i, 261.
- $C_8H_{12}O$, from ethylic β -methylaminocrotonoethylideneacetoacetate (KNOEVENAGEL and REINECKE), A., i, 340.
- $C_8H_{14}ON_4$, from the action of ethylenediamine on glyoxal; also its platinumchloride (KOLDA), A., i, 328.
- $C_8H_{14}O_4N_4$ or $C_6H_9O_3N_3$, from action of methylic semiorthoxalate on acetamide (ANSCHÜTZ and STIEPEL), A., i, 573.
- $C_8H_{10}N_2$, from the action of soda on isobutaldazine hydrochloride (FRANKE), A., i, 329.
- $C_9H_9O_3NBr_2$, obtained by action of fuming nitric acid on dibromomesitol (AUWERS and RAPP), A., i, 30.
- $C_9H_{10}O_2Br_2$, obtained from dibromomesitol (AUWERS and RAPP), A., i, 30.
- Substance**, $C_9H_{10}O_2Br_2$, obtained from dibromo- ψ -cumenol, and its acetyl and diacetyl derivatives (AUWERS and RAPP), A., i, 30.
- $C_9H_{10}O_3$, from scoparein (PERKIN), P., 1899, 123.
- $C_9H_{10}O_5$, from oxidation of trimethylbrazilin (GILBODY and PERKIN), P., 1899, 28.
- $C_9H_{12}O_5N_2$, from action of phosphorus trichloride on the ureines of ethylic dioxysuccinate and diethoxysuccinate (GEISENHEIMER and ANSCHÜTZ), A., i, 575.
- $C_9H_{13}N$, from camphoroxime (FORSTER), T., 1147; P., 1899, 193.
- $C_9H_{13}O_6N_7$, from aminoguanidineglyoxylic acid and *m*-nitraniline (WEDEKIND and BRONSTEIN), A., i, 828.
- $C_9H_{15}ON$, from camphoroxime (FORSTER), T., 1148; P., 1899, 193.
- $C_{10}HN_2Cl_{11}$, from pyridine hydrochloride and chlorine (SELL and DOOTSON), T., 983; P., 1899, 187.
- $C_{10}HON_2Cl_9$, from substance
- $C_{10}HN_2Cl_{11}$, and moisture (SELL and DOOTSON), T., 983; P., 1899, 187.
- $C_{10}HON_3Cl_7$, from pyridine hydrochloride and chlorine (SELL and DOOTSON), T., 984; P., 1899, 187.
- $C_{10}H_7ON_6Cl_3$, from 2:6-dichloro- δ -oxy-7-methylpurine and phosphorus oxychloride (FISCHER), A., i, 394.
- $C_{10}H_{11}O_4N_3$, from the aniline derivative of oximidoacetic acid and nitrous acid (JOVITSCHITSCH), A., i, 239.
- $C_{10}H_{12}O_2NBr$, from action of bromine on cinnamide in presence of sodium methoxide (JEFFREYS), A., i, 731.
- $C_{10}H_{14}O_6N_2$, from α -dibromocamphor and nitric acid (LAPWORTH and CHAPMAN), T., 992; P., 1899, 159.
- $C_{10}H_{14}ONBr$, from camphoroxime (FORSTER), T., 1146; P., 1899, 193.
- $C_{10}H_{16}O_2NBr$, from camphoroxime and potassium hypobromite (FORSTER), T., 1144; P., 1899, 193.
- $C_{10}H_{16}O_2N_2S_2$, from the action of heat on the ammonia compound of dithioacetylacetone (VAILLANT), A., i, 415.
- $C_{10}H_{17}O_2Br$, from fencholenic acid and bromine (COCKBURN), T., 506.
- $C_{10}H_{18}O$, from fenchene (SCHIMMEL and Co.), A., i, 299.
- $C_{10}H_{21}NI$, from ethylic iodide and piperazine (VAN RIJN), A., i, 166.
- $C_{11}H_7N_3O$, obtained from β -naphthaquinoneaminoguanidine, and its sodium and silver derivatives (THIELE and BARLOW), A., i, 48.

Substance, $C_{11}H_8N_4$, $C_{11}H_{10}N_4$, and $C_{11}H_8N_4O$, obtained from β -naphtholaminoguanidine, and their salts (THIELE and BARLOW), A., i, 48.
 $C_{11}H_{15}O_2N_2ClS$, obtained by oxidation of benzylpropylene- ψ -thiocarbamide (UEDINCK), A., i, 498.
 $C_{11}H_{14}O_6$, from $C_{13}H_{14}O_7$, from oxidation of trimethylbrazilone (GILBODY and PERKIN), P., 1899, 28.
 $C_{11}H_{16}N_2O_3$, from bromoxazolone and caustic potash (HANRIOT and REYNAUD), A., i, 723.
 $C_{11}H_{18}O$, from dipentene, and formaldehyde; acetyl derivative (KRIEWITZ), A., i, 298.
 $C_{11}H_{18}O$, from limonene and formaldehyde (KRIEWITZ), A., i, 298.
 $C_{11}H_{18}O$, from pinene and formaldehyde; dihydrochloride, dihydrobromide, acetyl and benzoyl derivatives (KRIEWITZ), A., i, 298.
 $C_{11}H_{19}O_2N$, from pinole nitrosochlorides (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
 $C_{12}H_{11}O_2N$, obtained by action of glycocine on benzylmethylketone-*o*-carboxylic acid (GOTTLIEB), A., i, 513.
 $C_{12}H_{14}O_6$, from $C_{13}H_{14}O_7$, from oxidation of trimethylbrazilone (GILBODY and PERKIN), P., 1899, 28.
 $C_{12}H_{16}O_3N_2$, from 3-methoxy-1-phenyl-4-dimethyl-5-pyrazolone (MICHAELIS and RÖHMER), A., i, 234.
 $C_{12}H_{16}O_4N_2$, from bromoxazolone (HANRIOT and REYNAUD), A., i, 723.
 $C_{12}H_{17}O_7N_2Br$, from action of *p*-bromophenylhydrazine on glycuronic acid and on hydrolysed urochloralic acid (NEUBERG), A., i, 933.
 $C_{12}H_{20}O_3Br_2$, from pinole tribromide (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
 $C_{12}H_{20}(NO_2)_2$, from nitrohexanaphthene (MARKOWNIKOFF), A., i, 23.
 $C_{12}H_{21}O_2N$, from pinole nitrosochlorides (WALLACH, STIEHL, and SIEVERTS), A., i, 710.
 $C_{12}H_{23}N_{10}N + 2H_2O$, from action of methylic alcohol on *d*-glucosamine (SJOLLEMA), A., i, 732.
 $C_{13}H_{12}ON_4 + H_2O$, from nitrobenzenylnitrophenyleneamidine (PINNOW and WISKOTT), A., i, 501.
 $C_{13}H_{14}O_7$, from oxidation of trimethylbrazilone (GILBODY and PERKIN), P., 1899, 28.
 $C_{13}H_{18}O_2N_2$, from acetylacetone and anisamidine (GABRIEL and COLMAN), A., i, 638.

Substance, $C_{14}H_{11}O_3N_5$, from *m*-xylylaz-nitroso δ -nitrobenzene (WILLGERODT and KLEIN), A., i, 883.
 $C_{14}H_{14}ON_2$, and hydrochloride (EHRlich and SACHS), A., i, 884.
 $C_{14}H_{22}ON_2$, from action of water on methylic and ethylic isovalerylcyanacetates (KLOBB), A., i, 113.
 $C_{15}H_{14}ON_2$, from anilinoacetoneitrile and benzaldehyde (MILLER, PLÖCHL, and LUPPE), A., i, 128.
 $C_{15}H_{18}O_3N_4S$, obtained by action of diazobenzenesulphonic acid on *m*-aminodimethyl-*p*-toluidine (PINNOW and MATCOVITCH), A., i, 50.
 $C_{15}H_{23}ON$, from pentamethyldihydroquinoline methiodide (PICCININI), A., i, 76.
 $C_{16}H_6O_2N + 3H_2O$, from chloranil and pyridine (IMBERT), A., i, 633.
 $C_{16}H_{10}O_4$, obtained by reducing the tetramethylic derivative of δ -thiodiphthalic acid (GABRIEL and LEUPOLD), A., i, 122.
 $C_{16}H_{10}O_2N_2$, from trihydroxyphenyl-*aposafranone* (KEHRMANN and DUBRET), A., i, 83.
 $C_{16}H_{10}S_3$, obtained from δ -thiodiphthalide by the action of potassium hydrosulphide (GABRIEL and LEUPOLD), A., i, 121.
 $C_{16}H_{14}ON_4$ and $C_{32}H_{37}N_7$, obtained by the action of nitrous acid on phenyl-*p*-tolyliminopyrazoline (SEIDEL), A., i, 139.
 $C_{16}H_{14}O_2NBr_3$, obtained from dibrom-anhydro-*p*-hydroxymesitylic alcohol bromide (AUWERS and ALLENDORFF), A., i, 32.
 $C_{16}H_{15}ON$, obtained from ethylic anilinobenzylacetoacetate (BERTINI), A., i, 897.
 $C_{16}H_{16}ON_2$, from anhydroformaldehyde-*p*-toluidine and benzaldehyde (MILLER, PLÖCHL, and SIEBER), A., i, 128.
 $C_{16}H_{16}ON_2$, from benzylidenemethylamine and benzaldehyde (MILLER, PLÖCHL, and KOLLEGORSKY), A., i, 128.
 $C_{16}H_{16}ON_2$, from ethylideneaniline and benzaldehyde (MILLER, PLÖCHL, and HAMBURGER), A., i, 128.
 $C_{16}H_{19}O_7NS_2$, obtained from *p*-phenetolsulphinic acid by action of nitrous acid (GATTERMANN), A., i, 517.
 $C_{16}H_{21}ON$, from the action of methyl-aniline on methyl-octenonal (LÉSER), A., i, 415.
 $C_{16}H_{26}N_6$, 5-methylpyrazoline maleate (CURTIUS and ZINKEISEN), A., i, 166.

- Substance**, $C_{16}H_{28}O_4$, from action of sodium ethoxide on ethylic β -isopropylacetobutyrate, and its hydrolysis (BARBIER and GRIGNARD), A., i, 113.
- $C_{17}H_{11}N_5S_6$, from acetone and phenyl-dithiodiazolonehydrosulphamine (BUSCH and WOLFF), A., i, 951.
- $C_{17}H_{12}ON_2$, from action of benzoic chloride on acetonitrile (SEIDEL), A., i, 139.
- $C_{17}H_{13}O_4N$, from phthalic chloride and ethylic *p*-aminobenzoate (LIMPRICHT), A., i, 293.
- $C_{17}H_{15}ON$, obtained by action of potassium cyanide on chlorobenzylphenylacetone (GOLDSCHMIEDT and KNÖPFER), A., i, 140.
- $C_{17}H_{18}O_2N_4$, from pyruvic acid hydrazone (FREER), A., i, 358.
- $C_{18}H_{17}O_6N$, a secondary oxidation product of bebeerine and phenylhydrazine (SCHOLTZ), A., i, 92.
- $C_{18}H_{17}O_7N$, a secondary oxidation product of bebeerine (SCHOLTZ), A., i, 92.
- $C_{18}H_{18}O_{11}$, from action of sodium on ethylic malonate (WILLSTÄTTER), A., i, 577.
- $C_{18}H_{19}O_4N$, from oxidation of bebeerine; oxidation products, and phenylhydrazone (SCHOLTZ), A., i, 92.
- $C_{19}H_{22}O_6$, isomeric with lariciresinol (BAMBERGER and LANDSIEDL), A., i, 929.
- $C_{20}H_{16}O_3N_6$, from β -benzoinphenylhydrazone (FREER), A., i, 358.
- $C_{20}H_{18}N_2$, from bromacetophenonephenylhydrazone (FREER), A., i, 358.
- $C_{20}H_{18}O_2N_2S_2Ba$, from thymol-*p*-sulphonic and diazonaphthionic acids (STEBBINS), A., i, 917.
- $C_{21}H_{12}O_6$, obtained from acid $C_{20}H_{14}O_7$ and benzoic chloride (HEWITT and PRIT), T., 523; P., 1899, 101.
- $C_{21}H_{13}ON_2$, from action of benzaldehyde on benzylideneaniline, and its isomeride (MILLER, PLÖCHL, and BRUHN), A., i, 127.
- $C_{21}H_{22}O_3$, from *o*-diethoxydiphenyltetrahydropyrone (PETRENKO-KRITSCHENKO), A., i, 440.
- $C_{22}H_{20}O_2N_2$, from phenyl-*p*-anisidoacetonitrile and benzaldehyde (MILLER, PLÖCHL, and SCHEITZ), A., i, 128.
- $C_{23}H_{20}O_3N_2$, from action of benzaldehyde on benzylideneaniline (MILLER, PLÖCHL, and BRUHN), A., i, 127.
- Substance**, $C_{22}H_{20}O_4Br_4$, obtained from dibromo-*p*-hydroxynesitylbromide (AUWERS and ALLENDORFF), A., i, 33.
- $C_{22}H_{22}ON_2$, from action of heat on the aniline salt of the phenylimide of methylhexenonepyruvic acid (LÉSER), A., i, 329.
- $C_{22}H_{30}O_4$, from camphoroxalic acid and benzoic chloride (TINGLE), A., i, 445.
- $C_{23}H_{19}O_{10}N$, from nitrobenzaldehyde and gallacetophenone (RUPE and LEONTÉEFF), A., i, 371.
- $C_{23}H_{20}O_4$, from oxidation of *o*-tolyl carbonate and its acetyl derivative (CAZENEUVE), A., i, 296.
- $C_{24}H_{19}N_5S_6$, from acetophenone and phenyldithiodiazolonehydrosulphamine (BUSCH and WOLFF), A., i, 951.
- $C_{24}H_{24}O$, from menthenone and benzaldehyde (WALLACH), A., i, 533.
- $C_{24}H_{24}O_2$, from eucarvone and benzaldehyde (WALLACH), A., i, 531.
- $C_{24}H_{24}ON_2$, from cuminaldehyde and phenylanilinoacetonitrile (MILLER, PLÖCHL, and GERNGROSS), A., i, 127.
- $C_{24}H_{26}O$, by reduction of $C_{24}H_{24}O$ (WALLACH), A., i, 533.
- $C_{24}H_{26}O_2$, from carvenone and benzaldehyde (WALLACH), A., i, 533.
- $C_{24}H_{28}O_2$, from benzaldehyde and tetrahydrocarvone (WALLACH), A., i, 532.
- $C_{24}H_{36}O_8$, from hydrolysis of ouabain (ARNAUD), A., i, 70.
- $C_{25}H_{44}O$, from oleo-resin of *Dacryodes hexandra*; and its acetyl and tetra-nitro-derivative (MORE), T., 719; P., 1899, 150.
- $C_{26}H_{18}O$, from *o*-phenylbenzaldehyde (FANTO), A., i, 367.
- $C_{26}H_{19}N_3O_3$, from *o*-aminodiphenylamine and nitrobenzil (KEHRMANN and NATCHEFF), A., i, 81.
- $C_{26}H_{20}O_4$, from benzoin and resorcinol (VON LIEBIG), A., i, 915.
- $C_{26}H_{26}N_3Cl$, from benzil and α -diaminodiphenylamine, and acetyl derivative (KEHRMANN and NATCHEFF), A., i, 81.
- $C_{27}H_{25}O_2N_2Cl$, from α -naphthaquinone-tetramethyl-diaminodiphenylmethane, and lead peroxide (MÖHLAU), A., i, 62.
- $C_{30}H_{23}N_7$, from action of nitrous acid on cyanacetophenonephenylhydrazine (SEIDEL), i, 139.
- $C_{30}H_{26}O_2$, obtained from dibenzyl ketone (FORTEY), T., 872; P., 1899, 182.

Substance, $C_{32}H_{26}O_2N_2$, from action of phenylcarbimide on β -benzoylpropionic acid (KLOBB), A., i, 511.

$C_{34}H_{24}O_5S_2$, from thioguaiacol (GATTERMANN and BAMBERG), A., i, 514.

$C_{38}H_{26}O_6$, and its hydrates from benzil and resorcinol (VON LIEBIG), A., i, 915.

$C_{38}H_{26}O_6 + 11H_2O$, from benzil and resorcinol (VON LIEBIG), A., i, 915.

$C_{40}H_{28}O_2N_2$, from flavinduline and deoxybenzoin (SACHS), A., i, 239.

$C_{40}H_{60}O_4$, from galbanic acid (TSCHIRCH and KNITL), A., i, 714.

$C_{44}H_{64}Cu_3$, from the action of acetylene on copper and on cuprous oxide (ERDMAN and KÖTHNER), A., i, 21.

$C_{53}H_{51}O_{20}$ or $C_{52}H_{51}O_{20}$, obtained from wormwood, and derivative (ADRIAN and TRILLAT), A., i, 301.

$C_{54}H_{98}O_2$, from reduction of fabianaresen (KUNZ-KRAUSE), A., i, 449.

Substances with labile atom-groupings, determination of structure of (HANTZSCH), A., i, 399.

Succinamic acid, methylic salt (HOOGEWERFF and VAN DORP), A., i, 870.

Succinamide, oxidation of (OECHSNER DE CONINCK), A., i, 509.

mercury compound of, constitution of, (KIESERITZKY), A., ii, 395.

diamino-, ureine of (GEISENHEIMER and ANSCHÜTZ), A., i, 575.

Succinanilic acid (DUNLAP), A., i, 697.

Succinic acid, from malic acid by action of bacteria (EMMERLING), A., ii, 570.
from oxidation of β -aldehydepropionic acid (PERKIN and SPRANKLING), T., 16; P., 1898, 112.

equilibrium in, formation of anhydride from (BANCROFT), A., ii, 411.

compound of, with sulphuric acid (HOOGEWERFF and VAN DORP), A., ii, 672.

diureine of, and its ammonium and silver salts (GEISENHEIMER and ANSCHÜTZ), A., i, 175.

Succinic acid, potassium salt, heat of formation of (MASSOL), A., ii, 80.

methylic and ethylic salts, diureines of, also methylidiureine of the latter (GEISENHEIMER and ANSCHÜTZ), A., i, 575.

thymylic hydrogen and guaiacylic hydrogen salts (SCHRUYVER), T., 664; P., 1899, 121.

Succinic acid, amino-. See Aspartic acid.

bromo-, ethylic salt, synthesis of terebic acid from (BLATSE), A., i, 115.

and chloro-, optical isomerism of (WALDEN), A., ii, 393.

Succinic acid, chloro-, ethereal salts, specific rotations and molecular volumes of (FRANKLAND), T., 348, 352.

l-chloro- and *l*-bromo-, hydrolysis of, with different agents, optical inversion during; alkyloxy-derivatives of, optical behaviour of (WALDEN), A., ii, 538.

dichloro-, ethylic salt, from action of hypochlorous acid on ethylic fumarate (HENRY and ASCHMANN), A., i, 258.

Succinic acids, substituted, melting points of (SOLONINA), A., ii, 633.

solubility of (MASSOL and LAMOUROUX), A., i, 479.

iso-**Succinic acid** (*methylmalonic acid*, *ethanedicarboxylic acid*), and its dinitrile, from hydrolysis of tricyanethane (HANTZSCH and OSSWALD), A., i, 406.

ethylic salt, action of ethylic bromisobutyrate on (BONE), P., 1899, 5.

action of bromacetal on sodium derivative of (PERKIN and SPRANKLING), T., 18.

condensation of sodium derivative of, with ethylic bromopropionate and bromisobutyrate (BONE and SPRANKLING), T., 849.

iso-**Succinic acid**, *dibromo*-, ethylic salt, from action of bromine on ethylic methylenemalonate (KOMPPA), A., i, 417.

cyanimino-. See Malonic acid, *di*-cyano-.

Succinimide, formation of (MATHEWS), A., i, 56.

and its mercury and silver compounds, constitution of (KIESERITZKY), A., ii, 395, 396.

action of methylic alcohol on (HOOGEWERFF and VAN DORP), A., i, 870.

Succinonitrile (*ethylenic cyanide*), equilibrium between sodium chloride, water, and (SNELL), A., ii, 408.

action of cuprous chloride on (RABAUT), A., i, 557.

Succino-*p*-nitrobenzylamic acid, methylic salt, and **Succino-*p*-nitrobenzylimide**, and the action of methylic alcohol on it (HOOGEWERFF and VAN DORP), A., i, 870.

Succinylcamphoroxime (FRANKFORTER and MAYO), A., i, 713.

Sucrose (*saccharose*, *cane sugar*), production of (LIEBEN), A., ii, 45.

molecular refraction of (HALLWACHS), A., ii, 462.

influence of temperature on specific rotation of (WILEY), A., ii, 702.

Sucrose (*saccharose, cane sugar*), aqueous solutions of, molecular depression of vapour pressure of (DIETERICI), A., ii, 403.
 depression of freezing point of water by (RAOULT), A., ii, 203.
 contraction of aqueous solutions of, on dilution (WADE), T., 256, 270; P., 1899, 8.
 surface tension of aqueous solutions of (FORCH), A., ii, 641.
 viscosity of undercooled (TAMMANN), A., ii, 272.
 osmotic pressure of solutions of (PONSOT), A., ii, 204, 357.
 velocity of inversion, and osmotic pressure of solutions of (ARRHENIUS), A., ii, 359.
 inversion of, in aqueous alcohol (COHEN), A., ii, 275.
 inversion of, by metallic salts (KAHLENBERG, DAVIS, and FOWLER), A., ii, 470.
 inversion of, by neutral salts in presence of glucose (GEERLIGS), A., i, 101.
 inversion of, by water, and the influence of platinum, palladium, iridium, copper, and silver on the action (RAYMAN and ŠULC), A., i, 102.
 velocity of hydrolysis of, by different acids (SIGMOND), A., ii, 146.
 action of yeast enzymes on (KALANTHAR), A., i, 102.
 antiseptic action of (SALKOWSKI), A., i, 724.
 changes in, during storage (JESSER; RYDLEWSKI), A., ii, 48.
 cobalt derivatives of (HERZOG), A., ii, 818.
 solubility of lime in solutions of (WEISBERG), A., ii, 748.
 fate of, after injection into the circulation (PAVY), A., ii, 677.
 in plants, function and distribution of (SCHULZE), A., ii, 570.
 formation of dextrin and dextrose from by *Aspergillus niger* (TANRET), A., ii, 171.

Sucrose, detection and estimation of:—
 detection of (GAWALOWSKI), A., ii, 255.
 detection of, in milk (CAYAUX), A., ii, 254; (DE KONINGH), A., ii, 707.
 estimation of (LING), A., ii, 67.
 estimation of, as osazones (LINTNER and KROBER), A., ii, 66.
 estimation of, in chocolate (CARLES), A., ii, 67; (WOV), A., ii, 187.
 estimation of, in fodders (FOERSTER), A., ii, 818.

Sucrose, estimation of:—

estimation of, in presence of lactose (DOWZARD), T., 371; P., 1899, 9.
 estimation of, in molasses, &c. (LING and BAKER), A., ii, 67.
 influence of, on estimation of pentosans (ANDRLÍK), A., ii, 817.
 presence of unfermentable reducing substances in (GLENDINNING), A., ii, 187.

Sucrose. See also Agricultural chemistry.

Sugar, presence of a, in orange-peel (FLATAU and LABBÉ), A., ii, 445.
 optically inactive, from hydrolysis of fabianaglucoannoid (KUNZ-KRAUSE), A., i, 448.
 from albumin (MÜLLER and SEEMANN; BLUMENTHAL and MAYER), A., i, 968.
 nature of the, in diabetic urine (PATTEIN and DUFAU), A., ii, 375.
 source of, in phloridzin glycosuria (KUMAGAWA and MIURA), A., ii, 776.
 influence of experimental jaundice on the metabolism of (VON REUSZ), A., ii, 168.

Sugar-beet, estimation of quality of (SEMPOLOWSKI), A., ii, 389.

Sugar-cane. See Agricultural chemistry.

Sugar, "invert," estimation of, colorimetrically (SIDERSKY), A., ii, 254.
 estimation of moisture in (THORNE and JEFFERS), A., ii, 51.

Sugars, cause of mutarotation of (LOWRY), T., 212; P., 1899, 25.
 subcutaneously injected, injurious action of large doses of (KÓSSA), A., ii, 504.
 action of yeast-extract on (BUCHNER and RAPP), A., ii, 606.
 fermentation of, by yeasts and moulds, and influence of nitrogenous matter thereon (DUBOURG), A., ii, 376.
 fermentable, influence of, on glycogen formation in yeast-extract (CREMER), A., ii, 606.
 brewing, analysis of (MORRIS), A., ii, 187.
 diabetic, estimation of (LANDOLPH), A., ii, 186.
 reducing and invertible, of maize stalks (ISTRATI and ETTINGER), A., ii, 506, 507.
 estimation of, by iodine and Fehling's solution (SCHOORL), A., ii, 617.
 estimation of, by Kjeldahl's process (BRUHNS), A., ii, 254.
 estimation of, by weighing the copper precipitates (MEILLÈRE and CHAPPELLE), A., ii, 616.

Sugars, estimation of glycerol in presence of (LABORDE), A., ii, 816.

estimation of, in meat and urine (POLENSKE), A., ii, 186.

estimation of, as osazones (LINTNER and KROBER), A., ii, 66.

Sugars. See also:—

Arabinose.

Cane-sugar (*sucrose*).

Dextrose.

Digitalose.

Digitoxose.

Formose.

Galactose.

Glucose (*dextrose*).

Hederose.

Hexose.

Invert-sugar.

Lactose.

Lævulose.

Maltose.

Mannose.

Melibiose.

Melicitose.

Melitriose (*raffinose*).

Morfose.

Raffinose.

iso-Saccharin.

Sucrose (*cane sugar*).

Trehalose.

Xylose.

Sulphacetic acid, from action of sulphuric acid on acetic acid (BAGNALL), T., 279.

o-**Sulphamidobenzoic acid**, methylic salt, formation of (HOOGWERFF and VAN DORP), A., i, 870.

m- and *p*-**Sulphanilic acids**, action of, on tetramethyldiaminobenzhydrol (SUAIS), A., i, 59.

Sulph-hæmoglobin, preparation of, and action of acids on (HARNACK), A., i, 467.

Sulphates. See Sulphur.

Sulphines, identity of the four affinities of sulphur in (BRUCHONENKO), A., i, 189.

Sulphides, and **Sulphites**. See under Sulphur.

o-**Sulphobenzaldehyde-*m*-nitrophenylhydrazone** (ROUGY), A., i, 753.

as-**Sulphobenzimide** (MATHEWS), A., i, 58.

o-**Sulphobenzoic acid**, and ammonium salt, melting points of (MATHEWS), A., i, 57.

Sulphocamphylic acid, oxidation of (PERKIN), T., 175; P., 1893, 110.

Sulphocarbonilic acid (CAZENEUVE and MOREAU), A., i, 431.

Sulphocinchénine (*sulphocinchine*) (KONIGS and HÖPPNER), A., i, 88.

Sulphomethyltriazancarboxylic acid, aminoimino-, ethylic salt and amide of (THIELE and OSBORNE), A., i, 413.

Sulphonal (*diethylsulphonedimethylmethane*; *isopropylidenediethylsulphone*), velocity of crystallisation of (BOGOJAWLENSKY), A., ii, 206.

amino-, and salts and nitroso-compound (POSNER), A., i, 604.

Sulphonalphthalamic acid, and potassium salt (POSNER), A., i, 604.

Sulphones:—

Benzenesulphonazide.

Benzenesulphonehydrazide.

Benzylidenebenzenesulphonehydrazide.

Benzylidenenaphthylsulphonehydrazide.

Dibenzenesulphonehydrazide.

Dimethoxydiphenyldisulphonehydroxylamine.

Di-naphthylsulphonehydrazide.

Diphenylenedisulphone.

iso-Diphenylenedisulphone.

Diphenylsulphone.

Dipthalimidodisulphonol.

Ditolylidisulphone.

Ditolylenedisulphone.

Ethylacetonetriethyltrisulphone.

Methoxyaminopropanetriethyltrisulphone.

Naphthylpropylsulphone.

Naphthyl*iso*propylsulphone.

β -Naphthylsulphonazide.

Naphthylsulphonebutyric acids.

Naphthylsulphonehydrazide.

Phenylpropylsulphone.

Phenyl*iso*propylsulphone.

Phenylsulphonebutyric acid.

Phenylsulphone*iso*butyric acid.

Phenylsulphonesodioacetic acid.

Phenyltolylidisulphone.

Phenyltolylketosulphone.

Phthalimidodisulphonol.

Propylidenebenzenesulphonehydrazide.

Propylidenenaphthylsulphonehydrazide.

Sulphonol.

Sulphonalphthalamic acid.

Toluenesulphonacetic acid.

Toluenesulphonacetacetic acid.

Toluenesulphonomalonic acid.

Tolyl-*n*- and -*iso*propylsulphones.

Tolylsulphone-*n*- and -*iso*butyric acid.

Tolylsulphonephenylhydroxylamine.

Sulphonic acids, aliphatic (KÖHLER), A., i, 19.

of the paraffins (WORSTALL), A., i, 18.

1-*p*-Sulphophenyl-4-aminopyrazolone-3-carboxylic acid. See Tartrazinogenic acid, amino-.

Sulphur (native) from Sardinia (MILLOSEVICH), A., ii, 492.

deposited by mineral water (KNETT), A., ii, 772.

hylotropic-isomeric forms of (SCHAUM), A., ii, 733.

insoluble, formation of, by heating sulphur (KÜSTER), A., ii, 90.

atomic weight of (BERTHELOT), A., ii, 207.

molecular weight of, in carbon disulphide (BARNES), A., ii, 415.

molecular weight of, in naphthalene and in phosphorus (GLOSS), A., ii, 415.

identity of the four affinities of, in sulphines (BRJUCHONENKO), A., i, 189.

spectrum of (GRAMONT), A., ii, 345.

vapour, colour of (HOWE and HAMNER), A., ii, 89.

effect of pressure on melting point and transition curves of (TAMMANN), A., ii, 636.

liquid, absorption of hydrogen sulphide by (DUHEM), A., ii, 740.

action of iodine on (PRUNIER), A., ii, 650.

combination of, with hydrogen (KONOWALOFF), A., ii, 415.

action of, on silver nitrate dissolved in benzonitrile (NAUMANN), A., ii, 423.

action of, on sulphuric acid (ADIE), P., 1899, 133.

compounds in the urine under different conditions (HARNACK and KLEINE), A., ii, 375.

Sulphur chloride, action of, on hydrocarbons, in presence of aluminium-mercury couple (COHEN and SKIRROW), T., 887; P., 1899, 183.

oxychloride, Ogie's, a mixture (KNOLL), A., ii, 18.

hydride. See Hydrogen sulphide.

Sulphides, alkali, spark spectra of, (GRAMONT), A., ii, 345.

detection of sulphites, sulphates, and thiosulphates in presence of (BROWNING and HOWE), A., ii, 124.

estimation of, in presence of sulphites and thiosulphates (FELD), A., ii, 246.

Polysulphides, estimation of, in presence of sulphides and free sulphur (FELD), A., ii, 246.

Sulphur dioxide (*sulphurous anhydride*), liquid, specific gravity, coefficients of expansion and compressibility of; commercial, action of, on iron (LANGE), A., ii, 478.

compressibility of mixture of, with carbon dioxide (BERTHELOT and SACERDOTE), A., ii, 404.

action of, on ferric sulphate (ANTONY and MANASSE), A., ii, 753.

action of, on hydrazine (DE BRUYN), A., ii, 745.

combustion of mixtures of, with hydrogen (BERTHELOT), A., ii, 282, 283.

liquid, action of, on iron (HARPF; LANGE), A., ii, 594.

Sulphur acids :—

Sulphurous acid, action of, on metals (BERTHELOT), A., ii, 283.

Sulphurous acid, detection and estimation of :—

detection of sulphides, sulphates, and thiosulphates in presence of (BROWNING and HOWE), A., ii, 124.

estimation of (FELD), A., ii, 246.

estimation of sulphur in (BOURGOGNON), A., ii, 517.

estimation of, in presence of sulphur in the free state (FELD), A., ii, 247.

estimation of, in presence of sulphides and thiosulphates (FELD), A., ii, 246.

Sulphuric acid, from coal containing sulphur or pyrites (THÖRNER), A., ii, 746.

ions of, migration number of, and temperature coefficient of (STARCK), A., ii, 625.

heat of dilution of (BERTHELOT), A., ii, 271.

solutions of, molecular depression of vapour pressure of (DIETERICI), A., ii, 403.

contraction of aqueous solutions of, on dilution (WADE), T., 256; P., 1899, 8.

densities of solutions of (BARNES and SCOTT), A., ii, 405.

absorption of water by, and hydrates of (BUSNIKOFF), A., ii, 360, 409.

action of some elements on (ADIE), P., 1899, 132.

action of, on metals (BERTHELOT), A., ii, 283.

action of nitric peroxide on (LUNGE and WEINTRAUB), A., ii, 479.

compounds of titanium dioxide with (BLONDEL), A., ii, 556.

Sulphates, alkali, spark spectra of (DE GRAMONT), A., ii, 345.

Sulphur acids :—

Sulphates, action of hydrochloric acid on (TUNNELL and SMITH), A., ii, 744.

normal, action of nitric acid on (TANRET), A., ii, 22.

reduction of, by bacteria (HARTLEY), A., ii, 437.

Sulphuric acid, detection and estimation of :—

detection of sulphides, sulphites, and thiosulphites in presence of (BROWNING and HOWE), A., ii, 124.

estimation of (MARBOUTIN and PÉCOUL), A., ii, 180; (ULSCH), A., ii, 802.

estimation of, in presence of iron (KÜSTER and THIEL), A., ii, 247, 611; (LUNGE), A., ii, 805.

estimation of combined (MARBOUTIN and MOLINIÉ), A., ii, 247, 518.

preparation of standard solutions of (MARSHALL), A., ii, 575.

titration of combined (REUTER), A., ii, 53.

separation of selenium from (JAN-NASCH and HEIMANN), A., ii, 60.

Pyrosulphuric acid, detection of (BARRAL), A., ii, 123.

estimation of (GRÜNHUT), A., ii, 381.

per-Sulphuric acid, and HSO_4 ions, formation of (STARCK), A., ii, 625.

per-Sulphates, valuation of (MONDOLFO), A., ii, 805.

Thiosulphates, action of, on iodates (JÖRGENSEN), A., ii, 248.

detection of sulphides, sulphates, and sulphites in presence of (BROWNING and HOWE), A., ii, 124.

estimation of, in presence of sulphides and sulphites (FELD), A., ii, 246.

Sulphur, detection and estimation of :—

detection of, in organic compounds (RAIKOW), A., ii, 123.

estimation of, in coal (HEATH), A., ii, 52; (ANTONY and LUCCHESI), A., ii, 517.

estimation of, in gases (PHILLIPS), A., ii, 35.

estimation of, in cast-iron and steel, volumetrically (THILL), A., ii, 693.

estimation of, in substances rich in iron (MEINEKE), A., ii, 693.

estimation of, in iron, pyrites, slags, coal, coke, asphalt, rubber, &c. (HERTING), A., ii, 804.

estimation of, in iron ores (MEINEKE), A., ii, 518.

estimation of, in liver of sulphur (BARTHE), A., ii, 329.

Sulphur, estimation of :—

estimation of, in organic substances (LONGHI), A., ii, 328.

estimation of, in petroleum (FILITI), A., ii, 575.

estimation of, in plants (BERTHELOT), A., ii, 330.

estimation of, in pyrites (HEIDENREICH), A., ii, 517.

estimation of sulphides, sulphites, and thiosulphates in presence of (FELD), A., ii, 246.

estimation of, in sulphites (BOURGOGNON), A., ii, 517.

estimation of, in crude sulphur (FUCHS), A., ii, 329.

Sulphur-bacteria (HARTLEY), A., ii, 437.

"**Sulphureins**" (SISLEY), A., i, 289.

Sulphuretted hydrogen. See Hydrogen sulphide under Hydrogen.

μ **Sulphydro- β -methyl- α -ethylthiazoline** (*mercaptomethylethylthiazoline*), from action of carbon disulphide on 3-bromo-2-aminopentane hydrobromide (JÄ-NECKE), A., i, 477.

Superphosphates. See Agricultural chemistry.

Suprarenal capsules, comparative physiology of (VINCENT), A., ii, 41.

secretion of the (DREYER), A., ii, 231.

nature of active substance in the (VON FÜRTH), A., ii, 115.

xanthine bases in the (OKERBLOM), A., ii, 778.

Suprarenal extract, action of, on the heart (WALLACE and MOGK), A., ii, 310.

effect of, when given by the mouth (GRÜNBAUM), A., ii, 441.

Surface tension of aqueous solutions, molecular depression or elevation of (FORCH), A., ii, 640.

of solutions of alkali chlorides (LINEBARGER), A., ii, 469.

Sweet orange, oil of. See Portugal, oil of.

l-**Sylvestrene**, presence of, in essential oil of oleo-resin from *Dacryodes hexandra* (MORE), T., 718; P., 1899, 150.

Sympathetic ganglia, physiological action of extracts of (CLEGHORN), A., ii, 569.

Symplesite from Sicily (LA VALLE), A., ii, 495.

Széchenyiite from Burma (KRENNER), A., ii, 673.

T.

Tachylyte from Antarctic regions (PRIOR), A., ii, 436.

- Tachylyte** from the North Atlantic (TERMIER), A., ii, 436, 501.
- Tænite**, carbon in (COHEN), A., ii, 674.
- Taka-diastase**, the activity of, and estimation of starch by (STONE and WRIGHT), A., i, 95.
- d-Talitol**, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Tallow**, rancidity of (SCALA), A., i, 478.
detection of, in cacao butter (LEWKOWITSCH), A., ii, 712.
iodine absorption of (SMETHAM), A., ii, 710.
- Tannic acid** (WALDEN), A., i, 212.
- Tannin**, amount of, in heather (PERKIN and NEWBURY), T., 338; P., 1899, 179.
in oaks, formation of, and relation to starch (MER), A., ii, 607.
colloidal nature of (KRAFFT), A., ii, 473.
specific rotation of aqueous, alcoholic, or acetic acid solution of (FLAWITZKY), A., i, 805.
action of sodium on, in alcohol (KUNZ-KRAUSE), A., i, 200.
detection of (SEYDA; TODESCHINI), A., ii, 341.
estimation of (VIGNON), A., ii, 135.
- Tannins**, reactions and classification of (KUNZ-KRAUSE), A., i, 762.
- Tanning liquors**, estimation of acidity of (PAESSLER and SPANJER), A., ii, 618.
- Tanning materials**, examination of (PROCTOR and PARKER), A., ii, 75.
- Tantalum** :—
per-Tantalalic acid, preparation of (MELIKOFF and PISSARJEWSKY), A., ii, 491.
- d-Tartaric acid**, electric conductivity of solutions of, at high pressures (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
influence of magnetic field on (WRIGHT and KREIDER), A., ii, 265.
solutions, specific rotation of (WENDELL), A., ii, 199.
lævorotation of, in concentrated solution (LEPESCHKIN), A., i, 576.
action of alkalis on (HOLLEMAN), A., i, 283.
action of, on metallic iron (ULSCH), A., i, 868.
detection of, in presence of oxalic acid (FRESENIUS), A., ii, 257.
estimation of (MOSZCZEWSKI), A., ii, 69; (KULISCH, KOHLMANN, and HÖPNER), A., ii, 340.
estimation of, in argols (ECKSTEIN; SCHÄFER), A., ii, 70.
- Tartaric acid**, mono-alkali salts, action of titanic and stannic oxides on (HENDERSON, ORR, and WHITEHEAD), T., 554; P., 1899, 108.
calcium salt, solubility of (ENELL), A., ii, 706.
complex copper salts, with sodium, potassium, and ammonium (BULLNHEIMER and SEITZ), A., i, 868.
potassium hydrogen salt, estimation of, in wines (MAGNIER DE LA SOURCE), A., ii, 70; (JAY), A., ii, 133.
rubidium salt, dissociation of (RIMBACH), A., ii, 345.
silver salt, action of isopropyl iodide on (PURDIE and PITKEATHLY), T., 156; P., 1899, 6.
sodium salt, electric conductivity of solutions of, at high pressure (BOGOJAWLENSKY and TAMMANN), A., ii, 138.
sodium ammonium, sodium potassium, and potassium hydrogen salts, specific rotations of, and separation of, from *l*- and racemic forms (KLIPPING and POPE), T., 38; P., 1898, 220.
ethereal salts, densities, molecular volumes and specific rotations of (FRANKLAND), T., 349, 361.
p-aminophenyl hydrogen salt (HINSBERG), A., i, 496.
isodiphenylhydroxyethylamine, *l*- and *d*-, salts (ERLENMEYER), A., i, 882.
ethylic salt, action of ethylic iodide on, in presence of silver oxide (PURDIE and PITKEATHLY), T., 158; P., 1899, 6.
strychnine salts, specific gravity, rotation formulæ and conversion temperature of (LADENBURG and DOCTOR), A., i, 310.
- Racemic acid**, solubility of, in water, effect of tartaric acid on (LADENBURG), T., 466; P., 1899, 73.
potassium salt, racemic transformation of (VAN'T HOFF and MÜLLER), A., i, 483.
sodium potassium and potassium hydrogen salts, separation of, from *d*-tartrates (KLIPPING and POPE), T., 42; P., 1898, 220.
- l-Tartaric acid**, sodium ammonium salt, separation of, from *d*-form (KLIPPING and POPE), T., 38; P., 1898, 200.
- Tartaric acids**, *d*- and *l*-, sodium ammonium salts, solubility of mixtures of, in water (LADENBURG), T., 467; P., 1899, 73.

- Tartaric acids**, *d*-, *l*-, and *i*-, melting point curves of mixtures of optically isomeric forms of, and of methylic salts (CENTNERSZWER), A., ii, 726.
- Tartaryl anilide**, and *o*-, *m*-, and *p*-toluidides, specific rotations of (GUYE and BABEL), A., ii, 719.
- Tartrazinogenic acid**, amino- (ANSCHÜTZ), A., i, 638.
- Taste** in relation to chemical constitution (STERNBERG), A., ii, 772.
of salts (HÖBER and KIESOW), A., ii, 206.
- Taurocholic acid**, detection of (VITALI), A., ii, 342; (GNEZDA), A., ii, 715.
- Tautocinchonine** (SKRAUP), A., i, 960.
- Tautomeric compounds**, solidification of mixtures of (ROOZEBOOM), A., ii, 355.
- Tautomerism** (KNORR), A., i, 673.
absorption spectra of isatin and carbostyrl and alkyl derivatives in relation to (HARTLEY and DOBBIE), T., 640; P., 1899, 47.
- Tea**, estimation of caffeine in (GADAMER), A., ii, 390.
- Teeth**, estimation of fluorine in (HEMPEL and SCHEFFLER), A., ii, 380.
- Tellurium**, preparation of (LENHER), A., ii, 478.
atomic weight of, and position in periodic system (WILDE), A., ii, 148.
spectrum of (DE GRAMONT), A., ii, 199.
compounds (METZNER), A., ii, 364.
- Tellurates**, action of hydrochloric acid on (TUNNELL and SMITH), A., ii, 744.
separation of palladium and selenium from (JANNASCH and MÜLLER), A., ii, 60.
separation of sulphuric and phosphoric acids from (JANNASCH and HEIMANN), A., ii, 60.
- Tellurium ores**, assay of (FULTON), A., ii, 63.
- Temperature**. See under Thermochemistry.
- Tennantite** from British Columbia (HOFFMANN), A., ii, 110.
- Tephrite** from Rlön Mountains (SEVERFRIED), A., ii, 162.
- Teraconic acid** (*dimethylitaconic acid*), and its anhydride; also its reduction (FITTIG and KRAFFT), A., i, 334.
and its identity with dimethylitaconic acid (SEMENOFF), A., i, 793.
- Terbium** in monazite sands (URBAIN), A., ii, 28.
metals in didymium from monazite sands (URBAIN), A., ii, 425.
- Terebenthene**, absorption of argon by (BERTHELOT), A., ii, 653.
- Terebic acid**, from *cis*- and *trans*-caronic acids (PERKIN and THORPE), T., 59.
synthesis of (LAWRENCE), T., 531; P., 1899, 105; (BLAISE), A., i, 115, 419.
ethylic salt, action of sodium ethoxide on (FITTIG and KRAFFT), A., i, 334.
- iso*-**Terebic acid** (*dimethylisoparaconic acid*), and the action of baryta on it (FITTIG and PETKOW), A., i, 335.
bromo-, and the action of alkalis on it (FITTIG and PETKOW), A., i, 335.
- iso*-**Terebilenic acid** (FITTIG and PETKOW), A., i, 335.
- Terephthalic acid** (*p-phthalic acid*), synthesis of, by action of soda on β -aldehydopropionic acid (PERKIN and SPRANKLING) T., 18.
formation of (VERLEY), A., i, 425; (COLLET), A., i, 434; (WEILER), A., i, 491.
aniline salt, nitro-, and 2:5-dichloro- (GRAEBE and BUENZOD), A., i, 763.
- Terpene**, $C_{10}H_{16}$, from pinene dibromide. See Tricyclene.
- Terpenes**, in lemon grass oil (TIEMANN), A., i, 623.
action of, on photographic plates (RUSSELL), A., ii, 720.
- Terpene series**, cryoscopic researches in (BILTZ), A., i, 297.
- Δ^4 -**Terpene-3-one**, crystalline substance from (HOBBS), A., i, 767.
- Terpenylic acid**, from *l*-terpineol (GODLEWSKY), A., i, 920.
synthesis of (LAWRENCE), T., 531; P., 105.
- Terpinene**, from *l*-linalool (STEPHAN), A., i, 68.
in oil of *Origanum majorana* (BILTZ), A., i, 535.
- Terpineol**, in cardamoms oil (SCHIMMEL and Co.), A., i, 63.
in oil of *Origanum majorana* (BILTZ), A., i, 535.
behaviour of, towards sodium acetate and acetic anhydride (SCHIMMEL and Co.), A., i, 64.
- d*-**Terpineol**, from *l*-linalool (STEPHAN), A., i, 68.
- l*-**Terpineol**, from *d*-linalool (STEPHAN), A., i, 68.
oxidation of (GODLEWSKY), A., i, 920.
- Tetracetoxyhydrazide** (CUNEO), A., i, 9; (STOLLE), A., i, 413.
- Tetracetoxydinaphthylmethane** (MEYER and CONZETTI), A., i, 764.
- Tetracetoxy-naphthalene** (ZINCKE and OSSENBECK), A., i, 765.

- Tetracetylcytryltriphenylhydrazide** (MANUELLI and DE RIGHI), A., i, 885.
- Tetracetyllicaricresinol** (BAMBERGER and LANDSIEDT), A., i, 929.
- Tetracetyluteolin** (PERKIN and NEWBURY), T., 831; P., 1899, 179.
- Tetracetylmorin** (PERKIN), T., 448; P., 1899, 66.
- Tetracetylmucic acid**, from action of acetic anhydride on mucic acid in presence of sulphuric acid (SKRAUP), A., i, 112.
- Tetracetylquercetin** (PERKIN), T., 449; P., 1899, 67.
- Tetra-aspartic acid**, action of sodium nitrite on (SCHIFF and SEVIERI), A., i, 674.
- tri- and tetra-phenylhydrazides, di-, tri-, and tetra-anilides, and phenyl-tetranilide of (SCHIFF), A., i, 195.
- Tetrabenzoylnataloin** (LÉGER), A., i, 821.
- Tetrabenzoyloxydioxy- $\beta\beta'$ -dipyridyl** (SELL and JACKSON), T., 515; P., 1899, 98.
- Tetrabenzyl- $\beta\beta'$ -diaminodinaphthylmethane** (MORGAN), P., 1899, 10.
- Tetraethyl- $\beta\beta'$ -diaminodinaphthylmethane** (MORGAN), P., 1899, 10.
- Tetraethyl-*m*-aminodiphenolsaccharin**, its salts and acetyl derivative (MONNET and KETSCHET), A., i, 213.
- Tetraethyl-diaminodi-*o*-tolylmethane** (FRIEDLÄNDER), A., i, 350.
- Tetraethylammonium lead iodide** (MOSNIER), A., ii, 222.
- Tetraethylphenol** (JANNASCH and RATHJEN), A., i, 878.
- Tetraethylthiuram disulphide**, electrolytic preparation of (SCHALL and KRASZLER), A., i, 414.
- Tetrahedrite** from Austria (JOHN and EICHLEITER), A., ii, 493.
- Tetrahydrocornicularolactone**. See $\alpha\delta$ -Diphenyl- $\alpha\gamma$ -pentanolide.
- Tetrahydrodicampherylic acid**, silver salt (PERKIN), T., 184; P., 1893, 110.
- Tetrahydroisoulauronic acid** (BLANC), A., i, 927.
- Tetrahydro- α -naphthylamine**, from α -ketotetrahydronaphthaleneoxime (KIPPING and HILL), T., 152; P., 1899, 5.
- d*-ac-Tetrahydro- β -naphthylamine**, *d*- α -bromocamphorsulphonate, *d*-camphorsulphonate (POPE), P., 1899, 170.
- Tetrahydro- β -oxazole**, diketones of (LAMBLING), A., i, 85.
- r*-Tetrahydropapaverine**, crystallisation and resolution of; its tartrate and nitrosamine (GOLDSCHMIEDT) A., i, 86.
- Tetrahydropapaveroline**, and hydriodide and hydrochloride (GOLDSCHMIEDT), A., i, 87.
- d*-Tetrahydroquinaldine**, preparation of, and *d*-camphorsulphonate and hydrochloride, fractional crystallisation of (POPE and PEACHEY), T., 1078; P., 1899, 199.
- l*-Tetrahydroquinaldine**, preparation of, from the externally compensated hydrochloride, and salts; density and specific and molecular rotation of (POPE and PEACHEY), T., 1069; P., 1899, 199.
- Tetrahydroquinaldines**, *l*- and *d*-, density, refraction and rotation of, and influence of solvent on (POPE and PEACHEY), T., 1113; P., 1899, 201.
- l*- and *r*-, melting points of, and of mixtures, and of benzoyl derivatives (POPE and PEACHEY), T., 1092.
- Tetrahydroquinoline**, 4-nitro-, 4-nitro-1'-nitroso-, 2-nitro-1'-nitroso-, 2-nitro- (STOERMER and DRAGENDORFF), A., i, 45.
- Tetrahydroquinolineurethane**, phenylic and naphthyl salts and chloro-derivative (CAZENEUVE and MOUREAU), A., i, 305.
- Tetrahydrotolualloxazine**, and its hydrochloride (KÜHLING), A., i, 722.
- Δ^2 -Tetrahydro-*o*-toluic acid** (*methylcyclohexenecarboxylic acid*) (SERNOFF), A., i, 584.
- Tetrahydro-*p*-toluquinaldine**, *l*- and *d*-, and hydrochlorides, rotatory power of, and *r*-, and its hydrochloride; crystalline forms of (POPE and RICH), T., 1093; P., 1899, 200.
- α -, β -, γ -, and Δ^4 -**Tetrahydrouvitic acids** (WOLFF and HEIP), A., i, 515.
- 2:4:2':4'-Tetrahydroxybenzophenone** (MEYER and CONZETTI), A., i, 763.
- Tetrahydroxydinaphthylmethane**, tetracetyl derivative of (MEYER and CONZETTI), A., i, 764.
- 2:3:2':3'-Tetrahydroxy-6:6'-dioxy-5:5'-dipyridyl**, and its tetrabenzoyl derivative (SELL and JACKSON), T., 515; P., 1899, 98.
- Tetrahydro-xylic acid**. See Dimethylcyclohexenecarboxylic acid.
- Tetrahydroxynaphthalene**, tetracetyl derivative (ZINCKE and OSSENBECK), A., i, 765.
- 1:4:3':4'-Tetrahydroxynaphthalene-diphenylmethane** (MÖHLAU and KLOPFER), A., i, 913.
- Tetraketohydronaphthalene**, diioxime (ZINCKE and OSSENBECK), A., i, 765.

- Tetramethyldiaminobenzhydrol**, action of *p*- and *m*-sulphanilic acids on (SUAIS), A., i, 58.
- Tetramethyl- $\beta\beta$ -diaminodinaphthylmethane** (MORGAN), P., 1899, 10.
- Tetramethyldiaminodiphenylethane**, salts, alkylhaloids, and dinitro-, tri-bromo- and triiodo-derivatives of (TRILLAT), A., i, 817.
- as-Tetramethyldiaminodiphenylethane**, and its platinochloride (TRILLAT), A., i, 615.
- Tetramethyldiaminodiphenylmethane** (WEINMANN), A., i, 204.
- Tetramethyldiaminodiphenylmethane-dimethylaminohydroxyphenoxazone-carboxylic acid**, hydrochloride of (MÖHLAU and KLOPPER), A., i, 914.
- Tetramethyldiaminodiphenylmethane-dimethyl-naphthaphenoxazinium and -hydroxynaphthaphenoxazinium chloride hydrochlorides** (MÖHLAU and KLOPPER), A., i, 914.
- Tetramethyldiaminodiphenylthioketone** (WEINMANN), A., i, 204.
- Tetramethyldiaminotriphenylcarbinol**, *p*-nitro-, and its picrate (WEDEKIND and GONSWA), A., i, 806.
- Tetramethylammonium lead iodide** (MOSNIER), A., ii, 222.
- perchromate** (WIEDE), A., i, 244.
- Tetramethylbenzidine** (BAMBERGER and TSCHIRNER), A., i, 682.
- hydrochloride methochloride** (PINNOW), A., i, 588.
- $\alpha\alpha$ -Tetramethylbutane, $\beta\beta$ -diimino-**. See Diacetylacetone, dicyano-.
- σ -Tetramethyldibenzyl** (MORITZ and WOLFFENSTEIN), A., i, 910.
- 3:5:3':5'-Tetramethyl-*p*-dihydroxystilbene**, 2:6:2':6'-*tetrabromo*-, and its diacetate (AUWERS and ALLEN-DORFF), A., i, 33.
- 2:2':6:6'-Tetramethyldipyridyl**, and salts (HUTH), A., i, 934.
- Tetramethylene (cyclobutane)**, cyano- (CARPENTER and PERKIN), T., 932.
- Tetramethylenecarboxylic acid**. See *cyclo*-Butanecarboxylic acid.
- Tetramethylenediamine** (*putrescine*), formation of, from ornithine; also its dibenzoyl derivative (ELLINGER), A., i, 186.
- Tetramethylenedicarboxylic acid**. See *cyclo*-Butanedicarboxylic acid.
- Tetramethylenedi-*o*-phenylenediamine** (FISCHER), A., i, 353.
- Tetramethylene-1:3-disulphide** (AUTENRIETH and WOLFF), A., i, 580.
- 1:3-Tetramethylenedisulphone**, and 2:2-*dibromo*-derivative (AUTENRIETH and WOLFF), A., i, 580.
- Tetramethylethylene**. See Hexylene.
- Tetramethylethylenic bromide**. See Hexylenic bromide.
- Tetramethylhæmatoxylin** and its oxidation derivatives (GILBODY and PERKIN), P., 1899, 28.
- Tetramethylhæmatoxylone** and its acetyl derivative (GILBODY and PERKIN), P., 1899, 28.
- Tetramethylindigo**, preparation of (KONOWALOFF), A., i, 891.
- Tetramethylmethane**. See Pentane.
- 2:6:11:15-Tetramethyl-2:6:10:14-octadecatetrene-8:9-diol** (VERLEY), A., i, 768.
- Tetramethylphloroglucinol**, preparation of, and *monomethylic ether* (REISCH), A., i, 803, 804.
- 2:2:6:6-Tetramethylpiperidine**, 4-bromo-, 1:4-*dibromo*-, 3:4-*dibromo*-, 1-bromo-4-iodo-, and 4-iodo- (SAMTLEBEN), A., i, 542.
- Tetramethylpyrazine**, formation of (DEMJEANOFF), A., i, 845.
- α -Tetramethylpyrrolidine- β -carboxylic amide**, salts, and nitroso-derivative (PAULY and ROSSBACH), A., i, 774.
- α -Tetramethylpyrrolidine- β -carboxylic acid**, and its methylic and ethylic salts, amide and methylamide (PAULY and ROSSBACH), A., i, 774.
- 2:2:6:6-Tetramethyl- Δ^3 -tetrahydropyridine hydrobromide, *perbromide* of** (SAMTLEBEN), A., i, 542.
- Tetramethylthioaniline**, and its hydrochloride (WEINMANN), A., i, 204.
- Tetranthera citrata* (*Litsaea citrata*)**, the alkaloid of (FILIPPO), A., i, 312.
- 1:2:4:5-Tetraphenylbenzene** (WISLICENUS and LEHMANN), A., i, 59.
- Tetraphenylbutane** (COHN), A., i, 296.
- Tetraphenyldimethylenetetrazine** (BISCHOFF), A., i, 279.
- Tetraphenylerythritol**. See Benzoin-pinacone.
- Tetraphenylmethane** (GOMBERG), A., i, 155.
- Tetraphenylcyclopentadiene**, and its *di*-bromo-compound (WISLICENUS and CARPENTER), A., i, 60.
- Tetraphenylcyclopentane** (WISLICENUS and CARPENTER), A., i, 60.
- 1:2:3:5-Tetraphenylcyclopentane-1:2-diol** (WISLICENUS and CARPENTER), A., i, 60.
- Tetraphenyl-*o*-phenylenediamine** (HAUSSERTMANN and BAUER), A., i, 685.
- α - and β -Tetraphenylphenylenediamines**, and their nitro-derivatives (HAUSSERTMANN and BAUER), A., i, 684.

Tetraphenylphosphorobetaine, and its salts (MICHAELIS and KÖHLER), A., i, 596.

2:3:5:6-Tetraphenylpyridine (WISLICENUS and CARPENTER), A., i, 60.

Tetraphenylurea, formation of (DIXON), T., 401.

Tetrazodanisyl, sulphate and chloride (STARKE), A., i, 589.

Tetrazodanisylsulphonic acid, sodium salt (STARKE), A., i, 589.

4:4'-Tetrazodiphenyl-3:3'-dicarboxylic acid (BÜLOW and VON REDEN), A., i, 150.

Tetrazolecarboxylic acid, and amide (THIELE), A., i, 171.

Tetrazoline. See Dihydratotetrazine.

Tetric acid (*acrylacetic acid*), constitution of; also its methylic salt (CONRAD and GAST), A., i, 114.

Tetruret, from action of ammonia on allophanazide (THIELE and UHLFELDER), A., i, 118.

Thalénite from Sweden (BENEDICKS), A., ii, 765.

Thalite from Lake Superior (WINCHELL), A., ii, 765.

Thallium in marcasite from Poland (ANTIPOFF), A., ii, 667.

cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.

action of hydrogen sulphide on, in acid solution (LOCZKA), A., ii, 100.

action of, on sulphuric acid (ADIE), P., 1899, 133.

Thallium azoimide (CURTIUS and RISOM), A., ii, 92.

chloride, and potassium nitrate, solubility of mixtures of (NOYES), A., ii, 10.

lead copper, lead nickel, lead iron, copper barium, and nickel barium nitrites (PRZIBYLLA), A., ii, 223.

persulphate (FOSTER and SMITH), A., ii, 747.

arsenic sulphide (LOCZKA), A., ii, 100.

Thalldema candidum, constituents of (HESSE), A., i, 384.

Thamnolic acid from *Thamnotia vermicularis* (HESSE), A., i, 381.

Thaumasite from Skottvång, Sweden (BÄCKSTRÖM), A., ii, 36.

Thebaine, derivatives of (FREUND), A., i, 307.

heat of combustion and formation of, and of combination with hydrochloric acid (LEROY), A., ii, 631.

detection of (MELZER), A., ii, 193.

Thebenine (FREUND), A., i, 308.

ethylic ether. See Etthebenine.

methylic ether. See Methebenine.

propylic ether. See Prothebenine.

Theobromine, homologues of (BRUNNER), A., i, 306.

estimation of (BRUNNER and LEINS), A., ii, 261.

separation of caffeine from (BRUNNER and LEINS), A., ii, 261.

THERMOCHEMISTRY :—

Thermochemistry of the nascent state (BERTHELOT), A., ii, 283.

Thermochemical researches on chloro-derivatives of the acetic, benzoic, and salicylic series (RIVALS), A., ii, 204.

of hydrocyanic acid and cyanides (BERTHELOT), A., ii, 737.

Heat absorbed in hydrolysis of undissociated chlorine (JAKOWKIN), A., ii, 737.

energy and entropy (WIEDEBURG), A., ii, 545.

mechanical equivalent of, and specific heats of gases (LEDUC), A., ii, 725.

Entropy, change of, in dissociation of ammonium double chlorides (MATIGNON), A., ii, 273.

of water and steam (STARKWEATHER), A., ii, 271.

Thermal properties of *n*-pentane (ROSE-INNES and YOUNG), A., ii, 587.

Temperature, constant, apparatus for (CADY), A., ii, 139; (RIJN), A., ii, 362.

normal room, proposal for (MEYER-HOFFER and SAUNDERS), A., ii, 7.

influence of, on chemical equilibrium (BODENSTEIN), A., ii, 637.

influence of, on refractive index of solutions of hydrochloric acid and alkali chlorides (CONROY), A., ii, 717.

variations of, in the human body (PEMBREY and NICOL), A., ii, 163.

of the horse (WOODHEAD), A., ii, 309.

of the mouth after exercise (PEMBREY), A., ii, 309.

action of, in the dwarfing of plants (BONNIER), A., ii, 686.

action of, on respiration and assimilation (PALLADIN), A., ii, 686.

Temperature coefficient of dielectric constant of alcohols (ABEGG and SEITZ), A., ii, 623.

of E.M.F. of cell $\text{Pb} \mid \text{PbCl}_2 \mid \text{Cl}$, (WEBER), A., ii, 724.

of equilibrium constant for solutions of chlorine in water (JAKOWKIN), A., ii, 737.

THERMOCHEMISTRY :—*Heat of formation* = *f.* ; *of transformation* = *t.* ; *of decomposition* = *d.* ; *of combination* = *cb.* ; *of combustion* = *c.* ; *of neutralisation* = *n.*

Critical temperature of hydrogen and nitrogen (DEWAR), A., ii, 741.
and pressure of *isopentane* (YOUNG), A., ii, 633.

Critical constants and molecular weight, relation between (BERTHELOT), A., ii, 404.

of mixtures of ethane with alcohols and water, and of carbon dioxide with water (KUENEN and ROBSON), A., ii, 356.

of hexamethylene (YOUNG and FORTEY), T., 880 ; P., 1899, 182.

Critical point of *p*-azoxyphenetol and *p*-azoxyanisole (HULETT), A., ii, 468.

Transition temperatures, effect of pressure on (TAMMANN), A., ii, 635.

of *p*-azoxyanisole, and influence of benzophenone on (SCHENCK and SCHNEIDER), A., ii, 637.

of boracite (MEYERHOFFER), A., ii, 729.

of hydrates of ferrous potassium sulphate (KÜSTER and THIEL), A., ii, 753.

of some salts (RICHARDS and BRIGGS), A., ii, 355.

Thermometers, variation of zero point of (MARCHIS), A., ii, 545.

Thermal expansion of liquid sulphur dioxide (LANGE), A., ii, 478.

Heat conductivity of liquids (AUBEL), A., ii, 354.

of various kinds of glass (WINKELMANN), A., ii, 399.

Heats, specific, of gases, and mechanical equivalent of heat (LEDUC), A., ii, 725.

of some organic liquids (LUGININ), A., ii, 269, 354.

and velocity of crystallisation of benzophenone, betol and apiole (TAMMANN), A., ii, 549.

ratio of, for ethane, propane, and *isobutane* (DANIEL and PIERRON), A., ii, 725.

ratio of, for nitrogen peroxide (POCHETTINO), A., ii, 729.

Latent heat, molecular, of iodine, solid or liquid (DEWAR), P., 1898, 243.

and total heats of water and steam (STARKWEATHER), A., ii, 270.

Latent heat of fusion, influence of temperature or pressure on (TAMMANN), A., ii, 399.

molecular, of α - and β -benzaldehyde (CAMERON), A., ii, 411.

Latent heat of fusion and velocity of crystallisation of benzophenone, betol and apiole (TAMMANN), A., ii, 549.

of chloral hydrate (POPE), T., 455.

of diphenylamine and naphthylamine (STILLMANN and SWAIN), A., ii, 728.

of lead chloride, lead bromide, silver chloride, cadmium chloride, and bromide (WEBER), A., ii, 724.

of *p*-toluidine, benzene and camphor, influence of pressure on (HULETT), A., ii, 469.

of water, diethylamine and silver iodide at low temperatures (TAMMANN), A., ii, 635, 636.

molecular, of zinc, lead and silver halogen salts (CZEPINSKI), A., ii, 268, 269.

Latent heat of vaporisation of hydriodic acid (COTTRELL), A., ii, 401.

of cadmium (WEBER), A., ii, 725.

of some organic liquids (LUGININ), A., ii, 269, 354.

of zinc and cadmium (SUTHERLAND), A., ii, 7.

Heat of amalgamation of zinc or cadmium (RICHARDS and LEWIS), A., ii, 267.

Heat of hydration of liquid ammonia (BERTHELOT), A., ii, 727.

of ethylenediamine (BERTHELOT), A., ii, 727.

Heat of neutralisation of strong bases and acids, and electrolytic dissociation (VAUBEL), A., ii, 727.

Heat of oxidation of salicylaldehyde to salicylic acid, and of *p*-hydroxybenzaldehyde to *p*-hydroxybenzoic acid (DELÉPINE and RIVALS), A., ii, 727.

Heat of transition of *p*-azoxyanisole, *p*-azoxyphenetol, and cholesteryl benzoate, from crystalline-liquid to isotropic form (HULETT), A., ii, 468.

Thermochemical data for aldehyde-ammonia with dilute sulphuric acid (*cb.*) (DE FORCRAND), A., i, 109.

for interaction of aldehydes with ammonia and with pyridine and quinoline bases (*f.*) (DELÉPINE), A., i, 186.

for aluminium (*c.*), iron (*c.*), and calcium (*c.*) (DITTE), A., ii, 426.

for aluminium bromide (*f.*) (BÉKÉTOFF), A., ii, 726.

THERMOCHEMISTRY:—*Heat of formation*=*f.* ; *of transformation*=*t.* ; *of decomposition*=*d.* ; *of combination*=*cb.* ; *of combustion*=*c.* ; *of neutralisation*=*n.*

Thermochemical data for ammonio-silver nitrate (*f.*, *d.*), and of ammonio-silver oxide (*f.*, *n.*) (BERTHELOT and DELÉPINE), A., ii, 748.

for isoamylmalonic acid (*n.*) ; and with solid potash (*cb.*) (MASSOL), A., ii, 143.

for azelaic acid (*n.* and *f.*) (MASSOL), A., ii, 353.

for butylmalonic acid potassium salt (*f.*) (MASSOL), A., ii, 547.

for calcium oxide (*f.*), calcium hydroxide (*f.*), and lithium and magnesium oxides (*f.*) (MOISSAN), A., ii, 352.

for catechol sodium salts (*f.*), and phenol sodium salt (*f.*) (DE FORCRAND), A., ii, 589.

for cholic acid (*c.*, *f.*), amygdalin (*c.*, *f.*), conicine (*c.*, *f.*, *n.*), ethylenediamine (*f.*, *n.*), its hydrate (*f.*) and dihydrochloride (*f.*) (BERTHELOT), A., ii, 726.

for chromomonacetic acid (*n.*) and chromodiacetic acid (*n.*) (RECOURA), A., ii, 662, 663.

for codeine, thebaine, papaverine and narcotine (*c.*, *f.*, and *n.*), and of their hydrochlorides (*cb.*) (LEROY), A., ii, 631.

for cyanic acid (*f.*), and carbamide (*f.*) (BERTHELOT), A., ii, 142.

for dicyanodiamide (*c.*, *f.*), cyanuramide (*c.*, *f.*), cyanomethine (*c.*, *f.*), and cyanethine (*c.*, *f.*) (LEMOULT), A., ii, 546.

for fergusonite (*d.*) (RAMSAY and TRAVERS), A., ii, 35.

for hexamethylenetetramine (*f.*) (DELÉPINE), A., i, 186.

for hydriodic acid (*f.*) (COTTRELL), A., ii, 401.

for hydrogen and oxygen (*cb.*) (PLATNER), A., ii, 628.

for lithium carbide (*f.*) (GUNTZ), A., ii, 24.

for lithium chlorides, ammoniacal (*f.*) (BONNEFOI), A., ii, 96.

for compounds of lithium chloride and methylamine (*f.*) (BONNEFOI), A., i, 185.

for metaformaldehyde (*f.*), and paraformaldehyde (*f.*) (DELÉPINE), A., ii, 142.

for morphine (*n.*) (LEROY), A., ii, 632.

Thermochemical data for morphine (*f.*, *c.*, *n.*), its hydrate (*c.*, *n.*), and hydrochloride (*f.*), and isoquinoline and *p*-toluidine hydrochlorides (*f.*) (LEROY), A., ii, 465, 466.

for nitro- and dinitro-mesitylene (*c.*) (KONOWALOFF), A., i, 874.

for some organic compounds (*c.* and *f.*) (BERTHELOT and ANDRÉ), A., ii, 400 ; (*c.*) (ZOUBOFF), A., ii, 589.

for potassium silver cyanide and potassium zinc cyanide (*d.*) (BERTHELOT), A., i, 846.

for action of potassium cyanide on zinc cyanide, or zinc sulphide, and of hydrogen sulphide on zinc potassium cyanide (*t.*) (BERTHELOT), A., ii, 422.

for potassium suberate (*f.*), potassium hydrogen suberate (*f.*), and potassium sebate (*f.*), oxalate (*f.*), malonate (*f.*), succinate (*f.*), and glutarate (*f.*) (MASSOL), A., ii, 80.

for propylmalonic acid (*n.*), and its potassium salt (*f.*), and potassium ethylmalonate (*f.*) (MASSOL), A., ii, 204.

for salicylic acid (*c.*, *f.*), salicylaldehyde (*c.*, *f.*), *p*-hydroxybenzaldehyde (*c.*, *f.*), and salicylhydramide (*c.*, *f.*) (DELÉPINE and RIVALS), A., ii, 727.

for silicon (*c.*) (CAMPBELL and HARTMAN), A., ii, 29.

for silver acetylde, and its compounds with silver nitrate, sulphate, chloride, and iodide (*f.*) (BERTHELOT and DELÉPINE), A., i, 841.

for silver amalgam (*f.*) (OGG), A., ii, 15.

for sodium with water and hydrogen sulphide (*cb.*) (DE FORCRAND), A., ii, 589.

for sodium percarbonate (*d.*), and sodium carbonate (*d.*) (TANATAR), A., ii, 482.

for sodium hydroxybenzoates (*f.*) (MASSOL), A., ii, 353.

for sodium oxide (*f.*), and potassium oxide (*f.*) (DE FORCRAND), A., ii, 588.

for sodium suboxide (*f.*), and peroxide (*f.*) (DE FORCRAND), A., ii, 141.

for trimetaphosphoric acid (*n.*), (TANATAR), A., ii, 417.

for zinc, lead, and silver halogen salts (*f.*), (CZEPINSKI), A., ii, 268.

THERMOCHEMISTRY :—

- Heat of solution** (VAN LAAR), A., ii, 545.
 calculation of (PLATNER), A., ii, 628.
 of ammonio-silver nitrate, or oxide (BERTHELOT and DELÉPINE), A., ii, 748.
 of isoamylmalonic acid, and of its potassium salt (MASSOL), A., ii, 143.
 of bromal hydrate (POPE), T., 460.
 of butylmalonic acid and its potassium salt (MASSOL), A., ii, 547.
 of calcium oxide in hydrochloric acid (GAUTIER), A., ii, 400.
 of undissociated chlorine (JAKOWKIN), A., ii, 737.
 of codeine, and of codeine, thebaine, papaverine and narcotine hydrochlorides (LEROY), A., ii, 632.
 of conicine and its hydrochloride, and of ethylenediamine and its hydrate and dihydrochloride (BERTHELOT), A., ii, 726.
 of gases (SCHILLER), A., ii, 357.
 of glycollonitrile, lactonitrile, and nicotine (BERTHELOT and ANDRÉ), A., ii, 401.
 of hydriodic acid (COTTRELL), A., ii, 401.
 of cast irons containing silicon (CAMPELL and HARTMAN), A., ii, 29.
 of lithium chlorides, ammoniacal (BONNEFOI), A., ii, 96.
 of morphine and its hydrate and salts; and of morphine in caustic potash solution (LEROY), A., ii, 465, 466.
 of potassium azelates (MASSOL), A., ii, 353.
 of propylmalonic acid and of its potassium salt (MASSOL), A., ii, 204.
 of sodium oxide and potassium oxide (DE FORCRAND), A., ii, 588.
 of sodium trimetaphosphate, and of silver metaphosphate (TANATAR), A., ii, 417.
 of suberic acid, of its potassium and potassium hydrogen salts, and of potassium sebate (MASSOL), A., ii, 80.
Heat of dilution involved in cryoscopic depression (KISTIAKOWSKI), A., ii, 730.
 and dissociation of electrolytes (NOYES), A., ii, 401.
 of amalgams, influence of, on electromotive force (CADY), A., ii, 395.
 of nitric acid (BERTHELOT), A., ii, 285.

THERMOCHEMISTRY :—

- Heat of dilution** of organic silver salts (VAN LAAR), A., ii, 11.
 of solutions (SCHILLER), A., ii, 357.
 of concentrated solutions of salts (DUNNINGTON and HOGGARD), A., ii, 728.
 of saturated solutions of salts (POLLOK), P., 1899, 8.
 of sulphuric acid (BERTHELOT), A., ii, 271.
Thialdine, from the action of hydrogen sulphide on ethylideneimine (DELÉPINE), A., i, 327.
Thiazylisobutyric acid, amino-, methylic salt, from action of thiourea on methylic γ -cyanodimethylacetate (CONRAD and GAST), A., i, 258.
Thinolite, from the United States (EDWARDS), A., ii, 303.
Thioallophanic acid derivatives, nomenclature of (DIXON), T., 392.
3-Thio-bis-1-phenyltriazole (PELLIZZARI and FERRO), A., i, 550.
3-Thio-bis-1-p-tolyltriazole (PELLIZZARI and FERRO), A., i, 551.
Thiobiurets, nomenclature of (DIXON), T., 392.
Thiocarbamide, action of chromic acid and potassium chromate on (OECHSNER DE CONINCK), A., i, 244.
 action of ethylic dioxysuccinate on (GEISENHEIMER and ANSCHÜTZ), A., i, 575.
 conversion of, into ammonium thiocyanate (WADELLE), A., ii, 410.
 oxidation of (OECHSNER DE CONINCK), A., i, 420.
Thiocarbimides, behaviour of, towards phenylhydrazine and its derivatives (MARCKWALD), A., i, 503.
Thiocarbonyl- β -o-aminophenylbenzimidazole (VON NIEMENTOWSKI), A., i, 647.
Thiocarbonylphenylcarbazine acid, chloro-, ethylic salt of (BUSCH and STERN), A., i, 957.
Thiocyanhydrins, formation of, by the action of potassium thiocyanate on chlorhydrins (ENGLE), A., i, 3.
Thiocyanic acid, ammonium salt, conversion of, into thiocarbamide (WADELLE), A., ii, 410.
 potassium salt, action of, on aliphatic chlorhydrins (ENGLE), A., i, 3.
 action of, on silver nitrate dissolved in pyridine (NAUMANN), A., ii, 423.
 methylic, ethylic, *n*- and *iso*-propylic, benzylic, and chlorethylic salts, action of, on ethylic cupracetoacetate and sodacetoacetate (KÖHLER), A., i, 737.

- Thiocyanic acid**, phenylic salt, absorption of argon by (BERTHELOT), A., ii, 653.
- $\alpha\beta$ -Thiocyano- α -acetylpropylic alcohol**. See α -Acetylpropylic alcohol, $\alpha\beta$ -dithiocyano-.
- α -Thiocyanopropylene glycol**. See Propylene glycol, α -thiocyano-.
- $\alpha\beta$ -Thiocyanopropylic alcohol**. See Propylic alcohol, $\alpha\beta$ -dithiocyano-.
- $\alpha\gamma$ -Thiocyanoisopropylic alcohol**. See *iso*-Propylic alcohol, $\alpha\gamma$ -dithiocyano-.
- Thiodiazole-2:5-disulphonic acid** (BUSCH and ZIEGELE), A., i, 826.
- Thiodiazole-2:5-dithiol**, aminobenzyllic ether and its salts and diazochloride; dimethyllic and dibenzyllic ethers of, and its disulphide and a polysulphide (BUSCH and ZIEGELE), A., i, 825.
- Thiodiazoethiolsulphamine**, monobenzyllic ether of (BUSCH and ZIEGELE), A., i, 826.
- Thioglycollic acid**, formation of (DIXON), T., 398; P., 1899, 63.
- Thiolcarbamic acid**, methylic, ethylic, isopropylic, isobutylic, and isoomylic salts (WHEELER and BARNES), A., i, 797.
- 2-Thio-7-methylpurine** (FISCHER), A., i, 175.
- Thioncarbamic acid**, methylic, ethylic, isobutylic and isoomylic salts, and the action of alkylic iodides on them (WHEELER and BARNES), A., i, 797.
- Thionyl-*p*-amido-benzylmethylaniline, -diethylaniline and -dimethylaniline** (FRANCKE), A., i, 46.
- Thionyl-1-amidodiphenylamine** (FRANCKE), A., i, 46.
- Thionylamidodiphenylamine** (FRANCKE), A., i, 46.
- Thiophanic and Thiophaninic acids** (HESSE), A., i, 383.
- Thiophen**, absorption of argon by (BERTHELOT), A., ii, 653.
dimercuric hydroxyacetate and diacetate (DIMROTH), A., i, 428.
amino-, acetyl derivative of (RIMINI), A., i, 872.
- Thiophthen**, formation of, from action of phosphorus trisulphide on aconitic acid and its sodium salt (HANNA and SMITH), A., i, 577.
- Thiosemicarbazides**, distinction between stereoisomerides by means of carbonyl chloride (MARCKWALD), A., i, 503.
- Thiosinamine**. See Allylthiocarbamide.
- Thomsonite**, vapour pressure of (TAMMANN), A., ii, 8.
- Thorium**, extraction of (WYROUBOFF and VERNEUIL), A., ii, 105.
radiation from (BEOQUEREL), A., ii, 394.
- Thorium carbide** (MOISSAN and ÉTARD), A., ii, 227.
tetrachloride and *tetrabromide*, compounds of, with amines (MATTHEWS), A., ii, 295, 296.
nitrates (WYROUBOFF and VERNEUIL), A., ii, 225.
- Thujetin**, formula and acetyl derivative of (PERKIN), T., 829; P., 1899, 161.
- Thyme**, oil of (LABBÉ), A., i, 621.
- Thymegol** (*o*-nitrothymol-*p*-sulphonate of mercury and potassium) (GAUTRELET), A., i, 802.
- Thymine** from various sources (GULEWITSCH), A., i, 834.
- Thymol**, from oil of *Monarda punctata* (KREMERS and HENDRICKS), A., i, 770.
melting point of, influence of pressure on (HULETT), A., ii, 469.
crystalline forms of (POPE), T., 464.
depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., i, 353.
depression of freezing point of solutions of ethereal salts in supercooled; by amyllic propionate (SCHALL), A., ii, 640.
solid solutions of menthol in (GARELLI and CALZOLARI), A., ii, 732.
condensation of, with benzoin (JAPP and MELDRUM), T., 1037; P., 1899, 167.
elimination of, as thymolglycuronic acid (KATSUYAMA and HATA), A., ii, 117.
- Thymolglycuronic acid**, formation of, in the organism (KATSUYAMA and HATA), A., ii, 117.
dichloro- (KATSUYAMA and HATA), A., ii, 117.
- Thymolphenolquinone** (BILTRIS), A., i, 199.
- Thymol-*p*-sulphonic acid** (STEBBINS), A., i, 604.
behaviour of, towards diazonaphthionic acid (STEBBINS), A., i, 916.
- Thymoquinone**, formation of (BILTRIS), A., i, 199.
- Thymylic carbamate**, preparation of (MOREL), A., i, 876.
chlorocarbonate (BARRAL and MOREL), A., i, 747, 802.
- Thyroid gland**, chemistry of the (Roos), A., ii, 232.
functions of the (BLUM), A., ii, 115.
physiology of the (BLUM), A., ii, 779.
active substance of the (Roos), A., ii, 779.
nature of iodine compound in the (BLUM), A., ii, 164.

Thyroid gland, the proteids of the (OSWALD), A., ii, 439.

Thyroidin. See Iodothyrim.

Tiglic acid. See Pentenoic acid.

Tiglonitrile (α -methylcrotononitrile), and dimethylamine derivative (HENRY), A., i, 568.

Tin, atomic weight of (LANDOLT, OSTWALD, and SEUBERT), A., ii, 87.

cathodes, pulverisation of, during electrolysis (BREDIG and HABER), A., ii, 78.

hylotropic-isomeric forms of (SCHAUM), A., ii, 733.

partition of, in lead-zinc mixtures (BANCROFT), A., ii, 470.

action of, on sulphuric acid (ADIE), P., 1899, 133.

Tin amalgams, of different concentrations, electromotive force between (CADY), A., ii, 395.

Tin alloys, with antimony, arsenic and phosphorus; antimonide, arsenide, and phosphide (STEAD), A., ii, 32, 33.

with calcium (MOISSAN), A., ii, 154; (TARUGI), A., ii, 749.

Tin salts, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.

reduction of, with calcium carbide (TARUGI), A., ii, 749.

Tin arsenide (STEAD), A., ii, 33.

phosphide (STEAD), A., ii, 33.

Stannic arsenite (REICHARD), A., ii, 23.

bromide, as a solvent in molecular weight determinations; chloride and iodide, solutions of, in stannic bromide (GARELLI), A., ii, 271.

chloride, molecular weight of, in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.

electrolysis of solutions of (DITTENBERGER and DIETZ), A., ii, 629.

and iodide (LENORMAND), A., ii, 33.

chloriodide, and a substance formed from, in ether and alcohols (LENORMAND), A., ii, 33.

chloriodides and bromiodides (LENORMAND), A., ii, 754.

dioxide, action of alkali oxalates on (ROSENHEIM and PLATSCH), A., i, 572.

Stannic acid, colloidal (LOTTERMOSE), A., ii, 558.

Stannous ortharsenite (REICHARD), A., ii, 23.

azoimide (CURTIUS and RISSOM), A., ii, 92.

Tin :—

stannous chloride, molecular weight of, in urethane (CASTORO), A., ii, 360.

reactions of, in organic solvents (NAUMANN), A., ii, 423.

lead iodide (MOSNIER), A., ii, 222.

Tin, organic compounds :—

Stannitartaric and stannicitric acids, salts of (HENDERSON, ORR, and WHITEHEAD), T., 556; P., 1899, 108.

Tin dioxide *p*-toluidine (THIELE and DIMROTH), A., i, 427.

Tin, detection, estimation, and separation of :—

detection of (DUCOMMUN), A., ii, 338.

detection of, in mineral waters (GARRIGOU), A., ii, 616.

estimation of, in commercial antimony (PATTINSON and PATTINSON), A., ii, 62.

estimation of, in alloy with antimony (FRAENKEL), A., ii, 524.

estimation of, in presence of copper, lead, and phosphorus (FRAENKEL), A., ii, 524.

estimation of, in tin ores (CAMPBELL and CHAMPION), A., ii, 62.

estimation of, in tin plate (JOB), A., ii, 61.

separation of antimony from (BORNE-MANN), A., ii, 615.

separation of copper, iron, lead, and zinc from (LANGMUIR), A., ii, 522.

separation of mercury from (JANNASCH and DEVIN), A., ii, 59.

Tin plate, estimation of lead in (CARLES), A., ii, 183.

Tissues, animal, reducing power of (HÉLIER), A., ii, 374.

Titanium in peat (BASKERVILLE), A., ii, 666.

Titanium trichloride (POLIDORI), A., ii, 295.

nitride (MATTHEWS), A., ii, 296.

dioxide "favas" from Brazil (HUSSAK), A., ii, 432.

compounds of, with sulphuric acid (BLONDEL), A., ii, 556.

"hydrated," from Brazil (HUSSAK), A., ii, 432.

Titanic acid, compounds of, with chromic acid (BLONDEL), A., ii, 369.

Titanitartaric, Titanicitric, and Titanimucic acids, salts of (HENDERSON, ORR, and WHITEHEAD), T., 556; P., 1899, 108.

Tobacco, estimation of non-volatile organic acids in (KISSLING), A., ii, 821.

(*Toluene compounds Me=1*).

- Tobacco**, estimation of nicotine in (KELLER), A., ii, 194; (HEFELMANN), A., ii, 261.
See also Agricultural chemistry.
- Tolane**, *p*-diamino-, action of chlorine on (ZINCKE), A., i, 616.
- p*-Toluacetodinitrilephenylhydrazone** (SEIDEL), A., i, 139.
- p*-Tolualdehyde**, and *m*-nitro-, and its phenylhydrazone, and *o*- and *p*-nitro-, and *p*-sulphophenylhydrazone, and *o*-nitro- (HANZLIK and BIANCHI), A., i, 597.
- Tolualloxazine**, reduction of (KÜHLING), A., i, 722.
- o*-Toluamide**, ω -chloro-5-nitro- (GABRIEL and LANDSBERGER), A., i, 133.
- p*-nitro- (LANDSBERGER), A., i, 210.
- Toluanides**, *o*-, *m*-, and *p*-, hydrolysis of (REID), A., i, 508.
- p*-Toluanilide**, thio- (BAMBERGER), A., i, 694.
- Toluene** in lignite tar (OEHLER), A., i, 816.
molecular weight of, in carbon tetrachloride or alcohol (SPEYERS), A., ii, 468.
boiling point and melting point of (LADENBURG and KRÜGEL), A., ii, 545.
fractionation of mixtures of, with benzene (YOUNG), T., 682.
depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
vapour pressures of solutions of, in carbon tetrachloride (LEHFELDT), A., ii, 633.
vapour pressures of mixtures of, with benzene, carbon tetrachloride, or alcohol (LEHFELDT), A., ii, 11.
diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
distribution ratio of mercuric chloride between water and (BROWN), A., ii, 83.
absorption of argon by (BERTHELOT), A., ii, 653.
condensation of, with phenylloxanthranol, with phthalyl dichloride, and with tolyl-3-methylloxanthranol (GUYOT), A., i, 295.
- Toluene**, bromo-, *p*-chlorobromo-, and chlorodibromo-, preparation of (COHEN and DAKIN), T., 894; P., 1899, 183.
 ω -bromoisonitro-, and its sodium salt (HANTZSCH and VEIT), A., i, 402.
2-chloro-4-bromo- (MELCHIKER), A., i, 208.

(*Toluene compounds Me=1*).

- Toluene**, ω -difluorochloro-, ω -trifluoro-, and ω -trifluoro-*m*-nitro- (SWARTS), A., i, 197.
 ω -nitro- (*phenylnitromethane*) (KONOWALOFF), A., i, 733, 873.
o-nitro-, electrolytic reduction of (ELBS and KOPP), A., i, 270.
p-nitro-, electrolytic reduction of (LÖN), A., i, 123; (ELBS and KOPP), A., i, 270.
oxidation of, with chromic acid (OECHSNER DE CONINCK and COMBE), A., i, 347.
 ω -isonitro- (*phenylisonitromethane*), and ω -iso-dinitro- (HANTZSCH and VEIT), A., i, 402.
- 3'-*o*-Toluenaezoinadazole** (BAMBERGER and VON GOLDBERGER), A., i, 545.
- 2:3-Toluenedioxime** and **3:4-Toluenedioxime** (ZINCKE and SCHWARZ), A., i, 751.
- p*-Toluenesulphodimethylenimide** (HOWARD and MARCKWALD), A., i, 749.
- p*-Toluenesulphonacetic acid** and ***p*-Toluenesulphonacetacetic acid**, ethylic salts (KÖHLER and MACDONALD), A., i, 907.
- o*-Toluenesulphonic sulphide**, trisulphide, and tetrasulphide (TROEGER and HORNUNG), A., i, 905.
- p*-Toluenesulphonic chloride** and diethylamide (MARCKWALD and DROSTE-HUELSHOFF), A., i, 290.
sulphide, disulphide, trisulphide, and tetrasulphide (TROEGER and HORNUNG), A., i, 905.
- p*-Toluenesulphonomalonic acid** and ***p*-Toluenesulphonosodiomalonic acid**, ethylic salts (KÖHLER and MACDONALD), A., i, 907.
- p*-Toluenesulphotrimethyleneimide** (MARCKWALD and DROSTE-HUELSHOFF), A., i, 290.
- o*-Toluic acid**, cyano-, substance obtained from, on heating (MATHEWS), A., i, 57.
p-nitro- (LANDSBERGER), A., i, 210.
- m*-Toluic acid**, amylic salt, density, specific rotation and refraction of (GUYE and BABEL), A., ii, 719.
 ω -trifluoro-, and its salts (SWARTZ), A., i, 197.
- p*-Toluic acid**, formation of (COLLET), A., i, 434.
p-toluidide, and *p*-thio- (BAMBERGER), A., i, 694.
- o*- and *m*-Toluic acids**, menthol salts of, optical activity and molecular volume of (TSCHUGÁEFF), A., ii, 3.
- o*- and *m*-Toluic chlorides** (KLAGES and LICKROTH), A., i, 599.

(*Toluene compounds Me=1*).

Toluic chlorides, *o*-, *m*-, and *p*-, preparation, and melting and boiling points of (FRANKLAND and ASTON), T., 494.

o-**Toluidine**, compounds of, with metallic salts (MATTHEWS), A., ii, 296.

condensation of, with $\alpha\delta$ -dibromopentane (SCHOLTZ and FRIEMEHLT), A., i, 541.

3-nitro- (GNEHM and BLUMER), A., i, 266.

m-**Toluidine**, ω -trifluoro-, and its acetyl derivative (SWARTS), A., i, 197.

p-**Toluidine**, formation of (LÖB), A., i, 123.

latent heat of fusion of, influence of pressure on (HULETT), A., ii, 469.

action of ozone on (OTTO), A., ii, 282.

action of methylic *dichloroxalate* on (ANSCHÜTZ and STIEPEL), A., i, 573.

velocity of diazotisation of (HANTZSCH and SCHÜMANN), A., ii, 550.

condensation of, with $\alpha\delta$ -dibromopentane (SCHOLTZ and FRIEMEHLT), A., i, 541.

hydrochloride, heat of formation of (LEROY), A., ii, 466.

p-tolyl*d*ithiocarbamate (HUGERSHOFF), A., i, 886.

p-**Toluidine**, *m*-nitro-, electrolytic reduction of (ELBS and SCHWARZ), A., i, 270.

o- and *p*-**Toluidine**, hydrochlorides of, action of chromic acid on (OECHSNER DE CONINCK and COMBE), A., i, 244.

o-, *m*-, and *p*-**Toluidine** mercurichlorides (SWAN), A., i, 38, 39.

stannochlorides and *p*-toluidine stannichloride (SLAGLE), A., i, 40.

zincochlorides, and zincobromides (BASE), A., i, 40.

o-**Toluidine-3-sulphonic acid** (CAZENEUVE and MOREAU), A., i, 431.

o-**Toluidine-5-sulphonic acid**, 3-nitro- $[\text{NH}_2 : \text{NO}_2 : \text{SO}_3\text{H} = 2 : 3 : 5]$ (GNEHM and BLUMER), A., i, 266.

p-**Toluidine-*o*- and *m*-sulphonic acids** (CAZENEUVE and MOREAU), A., i, 431.

p-**Toluidinoacetic acid**, nitrile and amide and nitroso-derivative of the last (MILLER, PLÖCHL, and SIEBER), A., i, 128.

p-**Toluidino-oxalic acid**, amino-, methylic salt (ANSCHÜTZ and STIEPEL), A., i, 573.

o-**Toluenitrile**, *p*-nitro-, and *p*-amino- and its salts (LANDSBERGER), A., i, 210.

m-**Toluenitrile**, ω -trifluoro- (SWARTS), A., i, 197.

o-, *m*-, and *p*-**Toluenitriles**, action of cuprous chloride on (KABAUT), A., i, 557.

(*Tolyl compounds Me=1*).

p-**Toluoylecarbiny acetate** (COLLET), A., i, 434.

Toluoymalic acids, *o*-, *m*-, and *p*-, methylic and ethylic salts, preparation and specific rotations of (FRANKLAND and WHARTON), T., 341; P., 1899, 26.

methylic and ethylic salts, molecular volumes of (FRANKLAND), T., 349.

p-**Toluoymethylcarbiny acetate** (COLLET), A., i, 434.

Toluoyltartaric acids, *o*-, *m*-, and *p*-, ethylic salts, molecular volumes of (FRANKLAND), T., 349.

Toluquinone, 4-bromo-, $[\text{O}_2 : \text{Br} = 2 : 5 : 4]$ (KEHRMANN and RÜST), A., i, 129.

Toluquinoneoxime, 4-bromo-, two forms of, and their acetyl and benzylic derivatives (KEHRMANN and RÜST), A., i, 129.

4-chloro-, two forms of, and their acetyl derivatives (KEHRMANN and TICHVINSKY), A., i, 129.

Toluquinone-*o*-oxime, and its silver and methyl derivatives, and the dibromide of the latter (BRIDGE and MORGAN), A., i, 130.

Toluquinone-*m*-oxime, and its silver, methyl, acetyl and benzoyl derivatives (BRIDGE and MORGAN), A., i, 130.

o-**Tolylacetic acid**, condensation of, with phthalic anhydride (BETHMANN), A., i, 520.

p-**Tolylacetodinitrile oxime** (SEIDEL), A., i, 139.

p-**Tolylacetylene** (4-methylstyrene), 3- ω -dinitro- (HANZLIK and BIANCHI), A., i, 891.

p-**Tolylacrylic acid** (*p*-methylcinnamic acid), *m*-nitro-, and salts (HANZLIK and BIANCHI), A., i, 891.

o-**Tolylaminoacetic acid**, and dichloro-derivative (HENTSCHEL), A., i, 815.

p-**Tolyl anilinomethyl ketone** (COLLET), A., i, 55.

p-**Tolyl- ψ -aziminoaminobenzene**, and its salts and acetyl derivative (WILLGERODT and DAUNER), A., i, 825.

p-**Tolyl- ψ -aziminobenzene** (WILLGERODT and KLEIN), A., i, 882.

p-**Tolyl- ψ -aziminonitrobenzene** (WILLGERODT and DAUNER), A., i, 824.

and salts (WILLGERODT and KLEIN), A., i, 882.

4-*p*-**Tolylbenzaldehyde** (WEILER), A., i, 519.

p-**Tolylbromopropylsulphone** (TROEGER and UHDE), A., i, 608.

o-**Tolylcarbamic acid**, 5-nitro- and 4-nitro- (VITTENET), A., i, 757.

(Tolyl compounds $Me=1$).

- p*-Tolylcarbamic acid, *m*-nitro-, and *o*-nitro-, ethylic salts (VITTENET), A., i, 757.
- o*-, *m*-, and *p*-Tolylcarbamides, and nitroso-derivatives (WALTHER and WLODKOWSKI), A., i, 590, 591.
- o*-Tolylcarbimide, 5-nitro- and 4-nitro- (VITTENET), A., i, 757.
- p*-Tolylcarbimide, *m*-nitro-, and *o*-nitro- (VITTENET), A., i, 757.
- p*-Tolyl chloromethyl ketone (COLLET), A., i, 55.
- 4-Tolyl-4-chlorophenylthiosemicarbazide, the imidodiazolone and thiodiazolone (MARCKWALD), A., i, 504.
- Tolyl-4-chlorophosphine, 2-chloro- (MELCHIKER), A., i, 207.
- p*-Tolylchlorostibine (HASENBÄUMER), A., i, 209.
- 2-Tolylisocoumarin (BETHMANN), A., i, 520.
- 2-Tolyl-dihydroisocoumarin, and bromo-derivative (BETHMANN), A., i, 520.
- p*-Tolyl-dithiocarbazine acid, methylic and ethylic, and benzylic salts (BUSCH and LINGENBRINK), A., i, 953.
- p*-Tolylisodithiodiazolone, and its methiodide (BUSCH and LINGENBRINK), A., i, 954.
- p*-Tolyl-dithiodiazolone-sulphonic acid, hydrosulphamine, dimethylhydrosulphamine, and ethylhydrosulphamine (BUSCH and VON BAUR-BREITENFELD), A., i, 951.
- o*-Tolyl-dithiodiazolonethiol, and its methylic ether, disulphide, and *p*-aminophenyl ether (BUSCH and MÜNKE), A., i, 952.
- p*-Tolyl-dithiodiazolonethiol, and its methylic ether, disulphide, and acetyl and benzoyl derivatives, and *p*-aminophenyl, and methylaminophenyl ethers, with their nitrosamine derivatives and azo-dye (BUSCH and VON BAUR-BREITENFELD), A., i, 951.
- m*-Tolylenediamine, action of, on red blood corpuscles (LAPIQUE and VAST), A., ii, 504.
- Tolylenedimethylcarbamide. See 2:1':3'-Trimethylbenzimidazolone.
- Tolylenedimethyldiamine [$NMe_2:NH_2=2:4$] (GNEHM and BLUMER), A., i, 266.
- 1:2:3-Tolylene-furazan, 1:3:4-tolylene-furazan (ZINCKE and SCHWARZ), A., i, 751.
- Tolylene-methyl-blue hydrochloride (GNEHM and BLUMER), A., i, 266.
- Tolylene-methyldiamine [$NHMe:NH_2=2:4$], and sulphate (GNEHM and BLUMER), A., i, 266.

(Tolyl compounds $Me=1$).

- p*-Tolylethylideneoxycyclotriazan (VOSWINCKEL), A., i, 959.
- 2-Tolylethylthiosemicarbazide (MARCKWALD), A., i, 505.
- o*- and *p*-Tolylglucoside (RYAN), T., 1056; P., 1899, 196.
- o*- and *p*-Tolylglycinyl-carbamides, *p*-ethoxyphenylcarbamides, -ethylurethanes, and -phenylcarbamides (FRERICH and BECKURTS), A., i, 806.
- p*-Tolylglyoxylic acid (VERLEY), A., i, 207.
- p*-Tolylhydrazine, *m*-nitro-, hydrochloride (ZINCKE and SCHWARZ), A., i, 751.
- o*-Tolylhydroxylamine, preparation of (HABER), A., i, 270.
- Tolylhydroxynaphthazinedisulphonic acid, sodium salt (HANTOWER and TAUBER), A., i, 63.
- o*-Tolyl carbonate, preparation of (MOREL), A., i, 876.
- carbonate, oxidation of (CAZENEUVE), A., i, 296.
- o*- and *p*-Tolyl chloride carbonates (BARRAL and MOREL), A., i, 747, 802.
- mercuric chloride (DIMROTH), A., i, 428.
- trisulphides (TROEGER and HORNUNG), A., i, 906.
- o*-, *m*-, and *p*-Tolyl ethylic carbonate (MOREL), A., i, 875, 876.
- p*-Tolylidene diacetate, *m*-nitro- (HANZLIK and BIANCHI), A., i, 891.
- p*-Tolylideneacetone, and *m*-nitro-, and phenylhydrazones and dibromides (HANZLIK and BIANCHI), A., i, 890.
- p*-Tolylideneacetophenone, and *m*-nitro-, and their dibromides, oximes, and phenylhydrazones (HANZLIK and BIANCHI), A., i, 890.
- p*-Tolylidene-*m*- and *p*-nitranilines, and *m*-nitro-derivative of former (HANZLIK and BIANCHI), A., i, 597.
- p*-Tolylidene-*m*-nitro-*m*- and *p*-xylidines (HANZLIK and BIANCHI), A., i, 597.
- o*-Tolylimino-*o*-tolylcarbamic acid, ethylic, propylic, isobutylic, and isomeric salts (DAINS), A., i, 592.
- p*-Tolylimino-*p*-tolylcarbamic acid, methylic, propylic and isomeric salts (DAINS), A., i, 592.
- p*-Tolyl iodethyl and iodomethyl ketones (COLLET), A., i, 434.
- Tolyl-3-methylantranol (GUYOT), A., i, 293.
- condensation of, with toluene (GUYOT), A., i, 295.
- p*-Tolylmethylisodithiodiazolone (BUSCH and LINGENBRINK), A., i, 954.

(*Tolyl compounds Me=1*).

- p*-Tolyl methyl ketone, preparation of; bromo-, and dibromo-derivatives (VERLEY), A., i, 207.
- Tolylmethylnitramine, amino- (PINNOW and OESTERREICH), A., i, 202.
- o*-Tolylmethylnitrosamine, 4-nitro- (GNEHM and BLUMER), A., i, 265.
- Tolyl-3-methylloxanthranol (GUYOT), A., i, 294.
- p*-Tolylmethyloxy^{cyclomethylenetriazan} (VOSWINCKEL), A., i, 959.
- 1:2-*p*-Tolylmethylpyrrolidine (SCHOLTZ and FRIEMEHLT), A., i, 541.
- p*-Tolylmethylthiodiazolinethiol, and its disulphide and methylic ether (BUSCH and LINGENBRINK), A., i, 954.
- o*- and *p*-Tolylmethylthiosemicarbazides (MARCKWALD), A., i, 504, 505.
- p*-Tolyl-naphthindolinonequinonecarboxylic toluidide (LIEBERMANN), A., i, 523.
- o*- and *p*-Tolyl- α - and - β -naphthylthiosemicarbazides (MARCKWALD), A., i, 504, 505.
- p*-Tolyl-*p*-nitro-*o*-tolyl-disulphone (KOHLE and MACDONALD), A., i, 905.
- δ -*p*-Tolylxybutylamine (SCHLINCK), A., i, 540.
- γ -*p*-Tolylxybutyric acid, and nitrile (SCHLINCK), A., i, 540.
- p*-Tolylpentahydro-1:2:4-diazthine (BUSCH and LINGENBRINK), A., i, 953.
- p*-Tolyl-*o*-phenylene-*p*-aminobenzenylamidine, and nitro-derivative (MUTTELET), A., i, 355.
- p*-Tolyl-*o*-phenylenediamine, methenyl derivative, mercurichloride (JACOBSON and LISCHKE), A., i, 276.
- 4-Tolylphenylmethane (WEILER), A., i, 491.
- Tolylphosphine tetrachloride, and oxychloride, 2-chloro- (MELCHIKER), A., i, 208.
- Tolyl-4-phosphinic acid, 2-chloro-, 2-chloronitro-, and their salts (MELCHIKER), A., i, 208.
- Tolylphosphinous acid, chloro-, its salts and phenylhydrazide (MELCHIKER), A., i, 208.
- p*-Tolylisopropylsulphone (TROEGER and UHDE), A., i, 607.
- 2-Tolylisoquinoline, and its chloro-derivative (BETHMANN), A., i, 521.
- p*-Tolylsemithiocarbazide (PELLIZZARI and FERRO), A., i, 551.
- p*-Tolylstibine oxide (HASENBÄUMER), A., i, 209.
- p*-Tolylsuccinic acid, and hydrogen ammonium salt (THIELE and MEISENHEIMER), A., i, 603.

(*Tolyl compounds Me=1*).

- p*-Tolylsulphonacetyl-amy lurethane, -isobutylurethane, -carbamide, -ethylurethane, and -methylcarbamide (FRERICHS), A., i, 795.
- p*-Tolylsulphone-*n*- and *iso*-butyric acids, and chloride, and bromo-derivative (TROEGER and UHDE), A., i, 606, 608.
- p*-Tolylsulphonephenylhydroxylamine (BAMBERGER, BÜSDORF, and SZOLAYSKI), A., i, 342.
- p*-Tolylthiocarbimide, sulphide of (BAMBERGER), A., i, 695.
- p*-Tolylthiodiazolinethiol, and its disulphide (BUSCH and LINGENBRINK), A., i, 954.
- 1-*p*-Tolyl-3-thiotriazolone (PELLIZZARI and FERRO), A., i, 550.
- 4-Tolyl-2-tolylthiosemicarbazide (MARCKWALD), A., i, 504.
- 1-*p*-Tolyltriazole (PELLIZZARI and FERRO), A., i, 551.
- 1-*o*- and 1-*p*-Tolyltriazoline, 3-imino- (CUNEO), A., i, 548.
- p*-Tolylurazole, action of phosphorus pentasulphide on (PELLIZZARI and FERRO), A., i, 550.
- 4-Tolyl-2:4-xylylthiosemicarbazide (MARCKWALD), A., i, 504.
- Tomato. See Agricultural chemistry.
- Tonalite gneiss from Carinthia (BECKE), A., ii, 500.
- Torrens site from the Hautes Pyrénées (LIENAU), A., ii, 761.
- Tourmaline from De Kalb, New York (PENFIELD and FOOTE), A., ii, 304.
- from Haddam Neck, Conn. (PENFIELD and FOOTE), A., ii, 304.
- from Ross-shire (HEDDLE), A., ii, 497.
- formula of (PENFIELD and FOOTE), A., ii, 304; (RHEINECK), A., ii, 601; (CLARKE), A., ii, 767.
- groups of (PENFIELD and FOOTE), A., ii, 304.
- Toxalbumin, presence of a, in eels (BENECH), A., ii, 439.
- Toxalbumins, absorption spectra of (BLYTH, T., 1166; P., 1899, 175).
- Toxigenone (KILIANI), A., i, 71, 932.
- Toxins, estimation of, in urine (CHIBRET), A., ii, 459.
- of snake-venom, action of antitoxin on (MARTIN), A., ii, 782.
- and antitoxins, explanation of physiological antagonism of (MARTIN and CHERRY), A., ii, 234.
- Trapa natans*, composition of (NEUMANN), A., ii, 794.
- Trehalase (BOURQUELOT and HÉRISSEY), A., i, 93.
- Trehalose, action of yeast enzymes on (KALANTHAR), A., i, 102.

- Triacetamide**, formation of (MATHEWS), A., i, 57.
- Triacetamidobenzaldehyde** (PINNOW and WISKOTT), A., i, 501.
- Triacethydrazide** (STOLLÉ), A., i, 413.
- Triacetonamine**, preparation of (PAULY), A., i, 872.
condensation of, with ethylic mercaptan (PAULY), A., i, 228.
imino-. See α -Tetramethylpyrroline- β -carboxylamide.
- Triacetone-ethylsulphide and -phenylsulphide** (PAULY), A., i, 228.
- Triaceto-*p*-nitrophenylhydrazide** (HYDE), A., i, 689.
- Triacetonylaminetrioxyime and its methiodide and ethiodide** (MATTHAIPOULOS), A., i, 10.
- iso*-Triacetoxyphenylene disulphide** (GENYRESSE), A., i, 148.
- Triacetyl diamidonaphtholsulphonic acid**, sodium and barium salts (GAESS), A., i, 374.
- Triacetyl diamidophenol** (KEHRMANN and BAHATRIAN), A., i, 31.
- Triacetyl-barbaloin and -isobarbaloin**, trichloro-, preparation of (LÉGER), A., i, 157, 158.
- Triacetylcampheride** (CIAMICIAN and SILBER), A., i, 537.
- Triacetyldibutylpyrogallol** (RÓŻYCKI), A., i, 880.
- Triacetylgenistein** (PERKIN and NEWBURY), T., 833; P., 1899, 179.
- Triacetylkosin** (DACCOMO and MALAGNINI), A., i, 158.
- Triacetylariresinol** (BAMBERGER and LANDSIEDL), A., i, 929.
- Triacetylmethylcyclopentene**, diimino-, from the decomposition of dicyanodiacetylacetone (TRAUBE), A., i, 193.
- Triacetylmorphine** (CAUSSE), A., i, 394.
- Triacetylmorphothebaine** (FREUND), A., i, 308.
- Triacetylpentaphenylpentane**, constitution of (GOLDSCHMIEDT and KNÖPFER), A., i, 141.
- Triacetylphloroglucinol**, condensation product obtained on hydrolysis of (HERZIG), A., i, 31.
- Triacetylquercetin** (PERKIN), T., 448; P., 1899, 66.
- Triacetyltriazole** (CUNEO), A., i, 9.
- 1:3:5-Trianilinobenzene**, 2-bromo-4:6-dinitro- (JACKSON and GAZZOLO), A., i, 744.
- Triazan**. See Prozan.
- Triazendicarbamidine** (*aminoimino methyltriazencarboxylic acid*), and its ethylic salt, amide, amidoxime, and imino-ether (THIELE and OSBORNE), A., i, 412, 413.
- Triazendicarbamidinonitrile**. See Diazoguanidine cyanide.
- Triazendicarbodiamidine** (*bisaminoimino methyltriazene*) (THIELE and OSBORNE), A., i, 413.
- 1:2:4-Triazole** (2:4-pyrradiazole), constitution of (ANDREOCCI), A., i, 947.
- Triazole**, amino- and chloro- (THIELE and MANCHOT), A., i, 168.
- Triazoleazodimethylaniline** (THIELE and MANCHOT), A., i, 168.
- Triazol-carboxylic acid**, amino-, and ethylic salt (THIELE and MANCHOT), A., i, 168.
- Triazolen ring** (BAMBERGER), A., i, 720.
- Tribenzoylacetonitrile**, preparation of, and anilide (SEIDEL), A., i, 139.
- 2:4':5-Tribenzoyl di-amino-5-hydroxydiphenyl** (JACOBSON and TIGGES), A., i, 275.
- Tribenzoylamino-oreinol** (HENRICH), A., i, 171.
- Tribenzoylbarbaloin**, trichloro-, preparation of (LÉGER), A., i, 157.
- Tribenzoylkosin** (DACCOMO and MALAGNINI), A., i, 158.
- Tribenzoylmethylphloroglucinol** (BOEHM), A., i, 32.
- Tribenzoylnataloin** (LÉGER), A., i, 821.
- Tribenzylamine**, aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
action of propylic and isopropylic iodides on (WEDEKIND), A., i, 351.
- Tribenzylidene-*l*-iditol**, **Tribenzylidenemannitol**, and **Tribenzylidene- α -talitol** (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Triboluminescence** and optical isomerism (ANDREOCCI), A., ii, 719.
- Tribrossidin**, from the action of nitric acid on trierucin (GADAMER), A., i, 864.
- Tribromhydrin**. See Propane, $\alpha\beta\gamma$ -tribromo-.
- Tributyryn**, preparation and physical constants of (SCHEIJ), A., i, 668.
- Tricaprin**, **Tricaproin**, and **Tricaprylin**, preparation and physical constants of (SCHEIJ), A., i, 668.
- Tricarballyldiphenylhydrazide**, dibenzoyl and dinitroso-derivatives (MANUELLI and DE RIGHI), A., i, 884.
- Tricyclene** and its dichloride (GINZBERG and WAGNER), A., i, 618.
- Tridipyridyl metallic salts** (BLAU), A., i, 387.
- Tridymite**, artificial (MOROZEWICZ), A., ii, 765.
- Trierucin**, from the fatty oil of *Tropaeolum majus*, and action of nitric acid on (GADAMER), A., i, 864.

- Triethylamine**, aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
 velocity of reaction of, with ethylic bromide (HEMPINNE and BEKAERT), A., ii, 359.
 action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1006; P., 1899, 124.
*di*bromide (WEDEKIND), A., i, 352.
 cerium *hex*achloride (KOPPEL), A., ii, 98.
*peri*oxide (NORRIS and FRANKLIN), A., i, 663.
 oxide (LACHMANN), A., i, 326.
 oxide (*triethyl*oxyammonia), and its salts; also its decomposition and reduction (DUNSTAN and GOULDING), T., 802; P., 1899, 60.
 formation of, by action of hydrogen peroxide on triethylamine (DUNSTAN and GOULDING), T., 1006; P., 1899, 124.
1:3:5-Triethylbenzene, preparation of, and *dinitro*-, *trinitro*-, *tribromo*-, and *diacetyl* derivatives of (GATTERMANN, FRITZ, and BECK), A., i, 491, 492.
2:4:6-Triethylbenzoic acid and *amide* (GATTERMANN, FRITZ, and BECK), A., i, 491, 492.
Triethylbenzophenone (KLAGES and LICKROTH), A., i, 599.
1':3':3'-Triethyl-2'-methylenindoline (PLANCHER), A., i, 451.
Triethylxyammonia. See *Triethylamine oxide*.
Triethylphosphine oxide, from action of dry oxygen on triethylphosphine (ENGLER and WEISSBERG), A., i, 189.
Triglycolamic acid, mercury derivative of, constitution of (KIESERITZKY), A., ii, 395.
Triguaiacylie phosphate (BOSCOGRANDE), A., i, 427.
1:2:3-Trihydroxyanthraquinone. See *Anthragallol*.
1:2:4-Trihydroxyanthraquinone. See *Purpurin*.
2:4:5- and 2:4:6-Trihydroxybenzaldehydes, and their phenylhydrazones (GATTERMANN and KÖBNER), A., i, 363.
Trihydroxybenzophenone. See *Alizarin yellow A*.
2:3:4-Trihydroxybenzophenonephenylimine (GRAEBE and KELLER), A., i, 703.
2:3:4- and 2:4:6-Trihydroxybenzylamines, and salts (GATTERMANN and KÖBNER), A., i, 363.
Trihydroxyethylamine, and its aurichloride (CHANCEL), A., i, 411.
d-**Trihydroxyglutaric acid** (LIPPMANN), A., i, 576.
d-, *l*-, and *r*-**Trihydroxyglutaric acids**, and their affinity constants (RUFF), A., i, 324.
Trihydroxyheptane, *nitro*-, formation of (HENRY), A., i, 729.
1:2:4-Trihydroxymethylaposafranon, and **1:2:4-Trihydroxyphenylaposafranon** and *triacetate* (KEHRMANN and DURET), A., i, 83.
Trihydroxyphenylcoline, and its hydrochloride (HESSE), A., i, 774.
2:4:5-Trihydroxy-1-propylphenylic trimethyl ether (KLAGES), A., i, 586.
1:2:8-Trihydroxyterpan (VON BAEYER and BAUMGÄRTEL), A., i, 224.
1:3:5-Triketo-4:6-dimethylcyclohexene, **2:2:4:6-tetrachloro-** (SCHNEIDER), A., i, 680.
1:3:5-Triketo-6-methylcyclohexene, **2:2:4:4:6-pentachloride** (SCHNEIDER), A., i, 679.
Triaurin, preparation and physical constants of (SCHEIJ), A., i, 668.
Trimellitic acid, formation of (COLLET), A., i, 56.
Trimercuracetic acid. See under *Mercury*.
Trimesic acid, synthesis of (WOLFF and HEIP), A., i, 516.
Trimetaphosphoric acid. See under *Phosphorus*.
2:3':4'-Trimethoxyanthraquinone (BISTRZYCKI and DE SCHEPPER), A., i, 152.
1:2:4:5-Trimethoxybenzaldehyde (GATTERMANN and EGGERS), A., i, 347.
2:4:6-Trimethoxybenzoylacetophenone, and *bromo-derivative* (VON KOSTANECKI and TAMBOR), A., i, 911.
4:5':6'-Trimethoxybenzoyl-2'-benzoic acid (BISTRZYCKI and DE SCHEPPER), A., i, 151.
2:3':4'-Trimethoxydihydroanthrone (BISTRZYCKI and DE SCHEPPER), A., i, 151.
4:5':6'-Trimethoxydiphenylmethane-2'-carboxylic acid (BISTRZYCKI and DE SCHEPPER), A., i, 151.
Trimethoxy- α -methylcinnamic acid (GATTERMANN and EGGERS), A., i, 347.
1:2:4:5-Trimethoxypropenylbenzene (asarone) (GATTERMANN and EGGERS), A., i, 347.
 reduction of, by sodium and alcohol (KLAGES) A., i, 586.
Trimethylacetic acid. See *Valeric acids*.

- Trimethylacetonylammonium** bromide, and its phenylhydrazine; also action of bromine on (BRENDLER and TAFEL), A., i, 104.
- chloride (*coprine chloride*), and its platinumchloride and aurichloride; also its oxime and its platinumchloride and aurichloride, and acetyl and benzoyl derivatives (FURNÉE), A., i, 5.
- and its oxime and physiological action of (SCHMIDT), A., i, 4.
- Trimethylacetophenylammonium** bromide and its oxime, and physiological action of (SCHMIDT), A., i, 4.
- Trimethylacetylsuccinic acid**, ethylic salt (BONE and SPRANKLING), T., 848.
- Trimethylacrylonitrile** (HENRY), A., i, 568.
- Trimethylamine**, action of bromacetone on (BRENDLER and TAFEL), A., i, 104.
- action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1005; P., 1899, 124.
- compound of, with mercuric chloride (HOFMANN and MARBURG), A., i, 487.
- hydrochloride, action of potassium dichromate and sulphuric acid on (OECHSNER DE CONINCK), A., i, 472.
- oxide (LACHMANN), A., i, 588.
- oxide (*trimethyloxyammonia*) and salts; also decomposition and reduction, and the action of methylic iodide and benzylic chloride on (DUNSTAN and GOULDING), T., 794; P., 1899, 58.
- formation of, by action of hydrogen peroxide on trimethylamine (DUNSTAN and GOULDING), T., 1005; P., 1899, 124.
- Trimethylammonium perchromate** (WIEDE), A., i, 244.
- 2:1':2'-Trimethylbenzimidazole**, methochloride of (PINNOW and SAMANN), A., i, 943.
- 3:1':2'-Trimethylbenzimidazole**, 2-amino-, 1-amino-, and salts (PINNOW and MATCOVITCH), A., i, 49.
- 3:1':2'-Trimethylbenzimidazole-1- and -2-azo- β -naphthylamines** (PINNOW and MATCOVITCH), A., i, 49, 50.
- 1':2':3'-Trimethylbenzimidazolinol and 2:1':3'-Trimethylbenzimidazolone** (PINNOW and SAMANN), A., i, 943.
- Trimethylbiuret**, from action of alkalis on trimethylic *isocyanurate* (FISCHER), A., i, 262.
- Trimethylbornylammonium** iodide, chloride, platinumchloride (FORSTER), T., 945.
- Trimethylbraziliin**, and oxidation products (GILBODY and PERKIN), P., 1899, 27.
- Trimethylbrazilone**, and oxidation products (GILBODY and PERKIN), P., 1899, 27.
- Trimethylisobutylammonium** platinumchloride, two crystalline forms of (WEDEKIND), A., i, 352.
- Trimethylcarbinol**. See *tert*-Butylic alcohol.
- s-Trimethyldeoxybenzoin** (KLAGES and LICKROTH), A., i, 599.
- Trimethyldihydroquinoline**, identity of with 1':3':3'-trimethyl-2'-methylenindoline (PLANCHER), A., i, 452.
- Trimethylene**. See *cyclo*-Propane.
- as-Trimethylenecarbamide** (HOWARD and MARCKWALD), A., i, 749.
- Trimethylenecarbonitrile**. See *cyclo*-Propanecarboxylonitrile.
- Trimethylenecarboxylic acid**. See *cyclo*-Propanecarboxylic acid.
- bis-Trimethylenedibenzimide** (HOWARD and MARCKWALD), A., i, 750.
- Trimethylenedibenzylsulphone** (AUTENRIETH and WOLFF), A., i, 579.
- Trimethylenedicarboxylic acid**. See *cyclo*-Propanedicarboxylic acid.
- Trimethylenediethylsulphone** (AUTENRIETH and WOLFF), A., i, 579.
- Trimethylenedimethylsulphone** (AUTENRIETH and WOLFF), A., i, 579.
- Trimethylenedisulphide**, imino-, hydrochloride, formation of (KÖHLER), A., i, 737.
- Trimethylene-ethylenediamine** and its salts; also its *dinitroso*- and dibenzoyl-derivatives (BLEIER), A., i, 664.
- Trimethylene-ethylenedibenzenesulphonamide** and its hydrolysis (BLEIER), A., i, 664.
- Trimethylene-ethylenic glycol**, chlorhydrin (MOKIEWSKY), A., i, 726.
- Trimethylenephénylthiocarbamide** (HOWARD and MARCKWALD), A., i, 749.
- Trimethylenetrianiiline**, and an isomeride of higher melting point (BISCHOFF), A., i, 279.
- Trimethylenic bromide**, action of zinc on (BERTHELOT), A., i, 872.
- chlorobromide, action of potassium cyanide on (HENRY), A., i, 183.
- dibenzylic and dimethylic sulphides (AUTENRIETH and WOLFF), A., i, 579.
- glycol (*α -propylenic glycol*), action of hydrogen bromide on (MOKIEWSKI), A., i, 729.
- $\beta\beta$ -bromonitro (MAAS), A., i, 322.
- iodhydrin, action of potassium cyanide on (HENRY), A., i, 183.

- Trimethylenic mercaptan**, and its condensation of, with aldehydes and ketones (AUTENRIETH and WOLFF), A., i, 579, 580.
- Trimethylenimine** and its trimethylenethiocarbamate and nitroso-derivative (HOWARD and MARCKWALD), A., i, 749.
- Trimethylethane**. See Pentane.
- Trimethylethylene**. See Amylene.
- Trimethylethylenic glycol**. See β -iso-Amylenic glycol.
- Trimethylethylmethane**. See Hexane.
- Trimethylgallic acid**, bromo-, nitro-, and amino-, and their methylic salts (HAMBURG), A., i, 364.
- $\alpha\beta$ -Trimethylglutaric acid** (*hexanedicarboxylic acid*), synthesis of, and its anhydride and imide (PERKIN and THORPE), T., 61; P., 1898, 250.
- α -cyano-, ethylic salt, and its hydrolysis (PERKIN and THORPE), T., 64; P., 1898, 251.
- Trimethylglutaric anhydride**, bromo-, and action of alcohol on (BALBIANO), A., i, 868.
- $\alpha\beta$ -Trimethylglutaranilic acid** (PERKIN and THORPE), T., 64; P., 1898, 251.
- 2':3':3'-Trimethylindolenine**, constitution of (PLANCHER), A., i, 454.
- and benzoyl derivative (PLANCHER and BETTINELLI), A., i, 543.
- Trimethylmethoxyammonium iodide** and decomposition and reduction; also the chloride, platinochloride, and aurichloride (DUNSTAN and GOULDING), T., 797; P., 1899, 59.
- 1':3':3'-Trimethyl-2'-methylenindolenine** (PLANCHER), A., i, 454.
- 1:2:3'-Trimethylnaphthalene**, and its ω -bromo- and $\omega:3:4:4'$ -tetrabromo-derivatives (VON BAEYER and VILGGER), A., i, 922, 923.
- Trimethyloxyammonia**. See Trimethylamine oxide.
- 1:1:2-Trimethylcyclopentane-2:3-dicarboxylic acid** (BOUVEAULT), A., i, 300.
- Trimethyl-1:1:2-cyclopentene- Δ^2 -methyloic-3 acid**. See *iso*-Lauronolic acid.
- Trimethylphenylammonium iodide**, formation of (BAMBERGER and TSCHIRNER), A., i, 683.
- Trimethylphloroglucinol**, from filicic acid, and its tribromo-derivative (BOEHM), A., i, 32.
- α -Trimethylphosphortolubetaine** and α - and β -Trimethylphosphortolubetainecarboxylic acids (CONEN), A., i, 208, 209.
- Trimethylpiperidinediethyl-mercaptole and -sulphonal** (PAULY), A., i, 228.
- Trimethylpiperidinediphenylmercaptole** (PAULY), A., i, 228.
- 1':3':3'-Trimethyl-2'-isopropylideneindoline**, identity of, with pentamethyldihydroquinoline (PLANCHER), A., i, 455.
- 3:5:5-Trimethylpyrazoline**, and hydrobromide (CURTIUS and ZINKEISEN), A., i, 165.
- 2:4:6-Trimethylpyridine** (γ -collidine), aminolytic constant of (GOLDSCHMIDT and SALCHER), A., ii, 551.
- Trimethylpyruvic acid**, and its ethylic salt, phenylhydrazone, and cyanhydrin (CARLINFANTI), A., i, 671.
- Trimethylquinazolone**, and its platinochloride (BAMBERGER and WEILER), A., i, 124.
- Trimethylsuccinic acid** (*pentanedicarboxylic acid*), formation of (BONE), P., 1899, 6.
- and anhydride, anilic acid, and calcium salt (BONE and SPRANKLING), T., 848.
- Trimethylsuccinic acid**, chloro-, ethylic salt, and its hydrolysis (KOMPPA), A., i, 420.
- cyano-, formation and hydrolysis of (BONE), P., 1899, 6.
- ethylic salt and hydrolysis (BONE and SPRANKLING), T., 855.
- 1:2:3-Trimethyltetrahydropyridine**, and salts (SACHS), A., i, 302.
- Trimethyltrimethylenic bromide**. See Hexane, dibromo-.
- 1:7:9-Trimethyluric acid** (FISCHER and AGH), A., i, 393.
- Trimyristin**, preparation and physical constants of (SCHEIJ), A., i, 668.
- Trioxymethylene**. See Paraformaldehyde.
- iso*-**Trioxyphenylene disulphide**, and triacetyl derivative (GENVRESSE), A., i, 148.
- Tripalmitin**, preparation and physical constants of (SCHEIJ), A., i, 668.
- Triphenanthroline**, metallic salts (BLAU), A., i, 388.
- Triphenodioxazine** (KRAUSE), A., i, 272.
- Triphenylacetic acid**, ethylic salt, velocity of formation of (SUDBOROUGH and LLOYD), T., 479; P., 1899, 3.
- Triphenylamine**, cryoscopic behaviour of, in triphenylmethane solution (GARELLI and CALZOLARI), A., ii, 732.
- nitro- (HAEUSSERMANN and BAUER), A., i, 204.
- Triphenylbromomethane**, periodide (GOMBERG), A., i, 155.

- $\alpha\beta\gamma$ -Triphenylbutyramide**, γ -cyano- (HENZE), A., i, 219.
- Triphenylcarbinol**, formation of (BODROUX), A., i, 678.
- Triphenylcarbinols**, synthesis of (NENCKI), A., i, 879; (MEISSEL), A., i, 880.
- 1:3:5-Triphenyl-4-cyanopyrazole** (SEIDEL), A., i, 139.
- $\alpha\beta\alpha'$ -Triphenylglutaric acid**, ethylic salt, anhydride and nitrile (HENZE), A., i, 218, 219.
- Triphenylguanidine** (DIXON), T., 405; (SCHALL), A., i, 280; (MONTECCHI), A., i, 429.
- Triphenylmethane**, formation of (MOUNEYRAT), A., i, 490.
synthesis of (NENCKI), A., i, 879; (MEISSEL), A., i, 880.
depression of freezing point of, by triphenylamine (GARELLI and CALZOLARI), A., ii, 732.
- Triphenylmethanes**, *p*-nitrodiamino-transformation of, into rosanilines (PRUD'HOMME), A., i, 217.
- Triphenylmethylphosphorobetaine**, and its salts (MICHAELIS and KÖHLER), A., i, 596.
- 2:5:5-Triphenyloxazolone**, and its conversion into benzimidoxydiphenylacetic acid; action of hydriodic acid on (JAPP and FINDLAY), T., 1028; P., 1899, 165.
- 1:2:4-Triphenylcyclopentadiene**, **1:2:4-Triphenylcyclopentane**, and **1:2:4-Triphenylcyclopentane-1:2-diol** (WISLICENUS and NEWMAN), A., i, 610, 61.
- Triphenylpropane** (COHN), A., i, 295.
- 1:3:5-Triphenyl-4-pyrazolcarboxylic acid** (SEIDEL), A., i, 139.
- 2:4:6-Triphenylpyridine**, and its oxime and dioxime (WISLICENUS and NEWMAN), A., i, 61.
- Triphenylsilicol**. See Silicon organic compounds.
- Triphenylstibine chloride** (HASENBÄUMER), A., i, 209.
- Triphenyltetrahydro- γ -pyrone** (GOLDSCHMIEDT and KNÖPPER), A., i, 140.
- acc-Triphenylthiobiuret** (DIXON), T., 394; P., 1899, 63.
- Triphenyl-*p*-tolylphosphorobetaine**, and its salts (MICHAELIS and KÖHLER), A., i, 596.
- 2:4:6-Triphenyltrimelic acid**, and its anhydrides, methylic and ethylic salts (LANSER), A., i, 916.
- Triphenylvinyl alcohol**, and benzoyl derivative (BILTZ), A., i, 439.
- Triplite**, action of oxalic acid on (PATERNO and ALVISI), A., ii, 18.
- Tripropanediolamine**, formation of (L. and E. KNORR), A., i, 411.
- Tripropylamine**, action of hydrogen peroxide on (DUNSTAN and GOULDING), T., 1008.
iodide and periodide (NORRIS and FRANKLIN), A., i, 663.
oxide (*tripropyloxamine*), and salts (DUNSTAN and GOULDING), T., 1008.
- Tripropylarsine oxide mercurichloride** (PARTHEE, AMORT, and GRONOVER), A., i, 474.
- Tristearin**, preparation and physical constants of (SCHEIJF), A., i, 668.
- Tritolylguanidine** (DAINS), A., i, 593.
- Troilite**, relation of ferrous sulphide and magnetic pyrites to (LINCK), A., ii, 416.
- Tropæolic acid** (GADAMER), A., i, 930.
- Tropæolin OO and OOO**, use of, in alkalimetry (GLASER), A., ii, 573.
- Tropeolum majus**, fatty oil from the seeds of (GADAMER), A., i, 864.
glucoside and essential oil of (GADAMER), A., i, 930.
oil of (GADAMER), A., i, 535.
- Tropine**, action of *o*-xylylenic bromide on (SCHOLTZ), A., i, 649.
chloride, bromide, and iodide, and their salts (VAN SON), A., i, 312.
- iso-Tropylamine**, and its thiocarbamide, hydrazide, and conversion into tropidine and *di-isotropyl*carbamide (WILLSTÄTTER and MÜLLER), A., i, 178.
- Truxone**, bromo- (MANTHEY), A., i, 894.
- Trypsin**, action of heat on (HARLAY), A., i, 967.
action of, on simple organic compounds (GULEWITSCH), A., i, 832.
- Tuberone** (VERLEY), A., i, 712.
- Tubes**, Dewar's, efficiency of (HEMPEL), A., ii, 140.
for low temperature work (HEMPEL), A., ii, 139.
- Tumours**, malignant, composition of (PETRY), A., ii, 568.
- Tungsten**, atomic weight of (THOMAS), A., ii, 489.
crystalline, obtained by electrolysis of lithiumparatungstate (HALLOPEAU), A., ii, 158.
preparation and specific gravity of (STAVERNAGEN), A., ii, 489.
action of, on sulphuric acid (ADIE), P., 1899, 133.
- Tungsten pentabromide** (DEFACQZ), A., ii, 489.
carbide (LEBEAU), A., ii, 427.
iron carbide (WILLIAMS), A., ii, 104; (CARNOT and GOUTAL), A., ii, 293.

Tungsten chlorobromides (DEFACQZ), A., ii, 754.
 triiodide (DEFACQZ), A., ii, 159.
 dioxide, crystalline, and tungstic anhydride (HALLOPEAU), A., ii, 159.
 pentoxide (GRANGER), A., ii, 32.
 silicide (VIGOUROUX), A., ii, 114; (WARREN), A., ii, 158.
 disulphide, preparation and properties of (DEFACQZ), A., ii, 428.
Tungstolithic tungstate (HALLOPEAU), A., ii, 159.
Tungstopotassic tungstate (HALLOPEAU), A., ii, 555.
Tungsticitric, **Tungstimalic**, and **Tungstimucic** acids, salts of (HENDERSON, ORR, and WHITEHEAD), T., 547; P., 1899, 107.
Tungsten, estimation and separation of:—
 estimation of (BREARLEY), A., ii, 337.
 estimation of, in steel (AUCHY), A., i, 524.
 separation of mercury from (JANNASCH and ALFFERS), A., ii, 59.
Tungsten-blue (GRANGER), A., ii, 32.
Tungsten-bronze (HALLOPEAU), A., ii, 159.
Turmeric, detection of, in rhubarb powder (JAWOROWSKI), A., ii, 75.
 use of, in alkalimetry (GLASER), A., ii, 573.
Turpentine, diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.
 active oxygen of (ENGLER and WEISSBERG), A., i, 221.
 oil of, oxidation of (LAWRENCE), T., 530.
 products of destructive distillation of (MÜLLER), A., i, 28.
 detection of mineral oils in (SCHREIBER and ZETSCHE), A., ii, 815.
d- and *l*-**Turpentine** oil, rotatory power of (WENDELL), A., ii, 199.
Tyrosinase, presence of, in beet leaves and stems, and its function (GONNERMANN), A., ii, 791.
Tyrosine (*p*-hydroxyphenyl- α -aminopropionic acid), presence of, in the broad-bean (BOURQUELOT and HÉRISSEY), A., ii, 324.
 presence of, in cystinuric urine (MOREIGNE), A., ii, 317.
 presence of, in fungi (WINTERSTEIN), A., ii, 240.
 presence of, in yeast extract (WRÓBLEWSKI), A., ii, 170.
 synthesis of (ERLENMEYER and HALSEY), A., i, 761.

VOL. LXXVI. ii.

Tyrosine (*p*-hydroxyphenyl- α -aminopropionic acid), formation of, from fibrin and detection by juice of *Russula delica* (HARLAY), A., i, 656.
 absorption spectrum of (BLYTH), T., 1164; P., 1899, 175.
Tysonite from Colorado (HILLEBRAND), A., ii, 301.

U.

Uintahite from Utah (ELDRIDGE), A., ii, 35.
Ullmannite from Sardinia (TRAVERSO), A., ii, 760.
Ulothrix flaccida, development of, in non-nitrogenous solutions (BOUILHAC), A., ii, 238.
Umbelliferone, presence of, in Sumbul root, non-occurrence in *Rad. levistici* and *Mei* (TSCHIRCH and KNITL), A., i, 714.
Umbilicaria pultulata, constituents of (HESSE), A., i, 382.
Umbilicic acid, presence of, in *Gyrophora polyphylla* (HESSE), A., i, 382.
Undecane in paraffin oil (OEHLER), A., i, 816.
dibromo- (JEFFREYS), A., i, 731.
nitro- (WORSTALL), A., i, 399.
Undecodilactone, formation of (FITTIG and STUBER), A., i, 418.
n-**Undecic acid** (*undecylic acid*), amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.
n-**Undecylamine** and its hydrochloride, platinumchloride, and benzoyl derivative; also action of nitrous acid on (JEFFREYS), A., i, 731.
Undecylcarbamic acid, methylic salt, and **Undecylcarbamide** (JEFFREYS), A., i, 731.
Undecylenamide (ASCHAN), A., i, 14.
Undecylene, and action of bromine on (JEFFREYS), A., i, 731.
n-**Undecylic alcohol** and its oxidation; also phenylcarbamate (JEFFREYS), A., i, 731.
Unsaturated compounds, oxidation of, with potassium permanganate (KONDAKOFF), A., i, 555.
 and aromatic compounds, theory of (THIELE), A., i, 554.
 groups of atoms, negative nature of (HEINRICH), A., i, 469.
 organic radicals, electro-negative nature of certain (CHARON), A., i, 469.
Uranite, vapour pressure of (TAMMANN), A., ii, 8.
Uranium, radiation from (BECQUEREL), A., ii, 393.

- Uranium**, tetrachloride and tetrabromide, double salts with potassium, lithium, and alkaline-earth chlorides and bromides (ALOY), A., ii, 555.
molybdate (CHRÉTIEN), A., ii, 363.
oxide, action of alkali oxalates on (ROSENHEIM and LIENAU), A., i, 569.
dioxide, hydrated, and oxychloride (ALOY), A., ii, 599.
- Uranic acid**, sodio- and potassio-hydroxylamine salts of (KOHLSCHÜTTER and HOFMANN), A., ii, 651.
- per-Uranic acid*, oxidation of alkalis by (MELIKOFF and PISSARJEWSKY), A., ii, 31.
phosphate crystallised (BOURGOIS), A., ii, 160.
- Substance, UO_3N , obtained by dehydrating hydroxylamine uranate (KOHLSCHÜTTER and HOFMANN), A., ii, 651.
- Uranous chloride and arsenate** (ALOY), A., ii, 599.
- Uranyl salts**, dissociation and conductivity of, and of sodium double salts (DITTRICH), A., ii, 629.
potassium or lithium chlorides (ALOY), A., ii, 556.
- Uranium mineral** (*carnotite*) from Colorado (FRIEDEL and CUMENGE), A., ii, 434.
- Urazole**, derivatives of (CUNEO), A., i, 9.
- Urceolaria scripsoa* and *U. cretacea*, constituents of (HESSE), A., i, 383.
- Urea** (*carbamide*), amount of, in various animal tissues and liquids (SCHÖNDORFF), A., ii, 373.
origin of, from glycocine in the living body (SPIRO), A., ii, 777.
sources of, in the organism (SCHWARZ), A., ii, 165.
excretion of, in man (BAIN and EDGEcombe), A., ii, 314.
estimation of (MOREIGNE), A., ii, 72, 73; (SALASKIN and ZALESKI), A., ii, 825.
precipitation, of by phosphotungstic acid (CHASSEVANT), A., ii, 390.
See also Carbamide.
- Ureides** and acetylated alkylic carbamates (BECKURTS), A., i, 795.
- Urethane** (*ethylic carbamate*), molecular depression of (CASTORO), A., ii, 360.
action of chromic acid and potassium dichromate on (OECHSNER DE CONINCK), A., i, 243.
action of organic bases on (MANUELLI and RICCA-ROSELLINI), A., i, 887.
- Urethane**, nitroso-, constitution of (HANTZSCH), A., i, 400.
- Urethane**, nitroso-, and its methyl derivative, constitution of (BRÜHL), A., i, 871.
- Urethanes**, preparation of, and action of nitrous acid on (THIELE and DENT), A., i, 14.
- Uric acid**, origin of, in the organism (HOPKINS and HOPE), A., ii, 117.
formation of, in the organism (WEISS), A., ii, 504.
sources of, in the living body (SCHREIBER and WALDVOGEL), A., ii, 780.
source of, in the bodies of mammals (MINKOWSKI), A., ii, 778.
further proofs of origin of, in the body from nuclein or alloxuric bases (JEROME), A., ii, 678.
formation of, by action of tissue extracts outside the body (SPITZER), A., ii, 604.
cause of infarcts of, in the kidneys of infants (SPIEGELBERG), A., ii, 778.
and its mono-, di-, tri-, and tetramethyl derivatives, relative stability of, towards alkalis (FISCHER), A., i, 262.
formation of murexide from (VITALI), A., i, 117.
mercury compound of, constitution of (KIESERITZKY), A., ii, 395.
reduction of (SUNDEVIK), A., i, 174.
excretion of (HAIG), A., ii, 440.
excretion of, in man (BAIN and EDGEcombe), A., ii, 314.
elimination of, in leucæmia (WHITE and HOPKINS), A., ii, 316.
causes of precipitation of, in urine (JEROME), A., ii, 116.
detection of, in sections of animal organs (SAINT-HILAIRE), A., ii, 133.
estimation of (MALLET), A., ii, 706.
estimation of, volumetrically (GIGLI), A., ii, 71.
estimation of, in urine (CAMERER and SÖLDNER), A., ii, 825.
- Urine**, freezing point of, in health and disease (BOUGHARD), A., ii, 314.
alloxuric bases present in (KRÜGER and SALOMON), A., ii, 233.
excretion of bases in the, of fasting animals (KATSUYAMA), A., ii, 314.
elimination of chlorides by, in rickets (OECHSNER DE CONINCK), A., ii, 42.
presence of organic chlorine in (VITALI), A., ii, 41.
separation of homogentisic acid from (GARROD), A., ii, 314.
human, amount of indican in (BOUMA), A., ii, 568.
supposed presence of organic iodine in (VITALI), A., ii, 116.

Urine, origin of kynurenic acid in the (MENDEL and JACKSON), A., ii, 117.
 presence of leucine and tyrosine in during cystinuria (MOREIGNE), A., ii, 317.
 of infants, relation of nitrogen to phosphates in (OECHSNER DE CONINCK), A., ii, 678.
 relation of total nitrogen to urea nitrogen in (MOREIGNE), A., ii, 73, 314.
 cause of the high value of the C/N quotient in (PREGL), A., ii, 440.
 preparation of nitroso-creatinine from (KRAMM), A., i, 85.
 recognition of pentose in (SALKOWSKI), A., ii, 679.
 nature of phosphorus compounds in (JOLLY), A., ii, 41.
 presence of proteose in pathological (ROSIN), A., ii, 42.
 determination of the reducing power of (HELLER), A., ii, 679.
 effects of administration of spermine on the (POEHL), A., ii, 502.
 the sugar present in diabetic (LE GOFF), A., i, 242; (PATEIN and DUFAY), A., ii, 375.
 elimination of various sugars in, after injection into the circulation (PAVY), A., ii, 677.
 the sulphur compounds of (HARNACK and KLEINE), A., ii, 375.
 causes of precipitation of uric acid in (JEROME), A., ii, 116.
 cause of toxicity of (HERRINGHAM), A., ii, 679.
 composition of, in fever (VON MORACZEWSKI), A., ii, 441.
Urine, analytical methods relating to:—
 analysis of (CAMERER and SÖLDNER), A., ii, 825.
 clarifying of, by lead dioxide (LOUBIOU), A., ii, 72.
 detection of acetone in (STUDER), A., ii, 190.
 detection of albumin in (STRZYZOWSKI), A., ii, 459; (GUÉRIN), A., ii, 716.
 detection of albumin and albumoses in (RIEGLER), A., ii, 264.
 detection of biliary acids in (VITALI), A., ii, 263.
 detection of blood in (ARNOLD), A., ii, 194.
 detection of dextrose in (FRÖHLICH), A., ii, 185.
 detection of homogentisic acid in (HUPPERT), A., ii, 706.
 detection of iodides in (VITALI), A., i, 117.
 detection of peptone in (FREUND), A., ii, 195.

Urine, analytical methods relating to:—
 detection of quinine in (CHRISTOMANOS), A., ii, 344.
 detection of taurocholic and glycocholic acid in (VITALI), A., ii, 342.
 detection of urobilin in (SAILLET), A., ii, 459.
 estimation of acidity of (DENIGES), A., ii, 525; (IMBERT and ASTRUC; LEPIERRE; LÉPINOIS), A., ii, 526.
 estimation of organic acids in (STEINDLER), A., ii, 704.
 estimation of albumin in (DENIGES), A., ii, 828.
 estimation of alkalis in (BOHLIG), A., ii, 810.
 estimation of bile pigment in (JOLLES), A., ii, 459.
 estimation of dextrose in (CARPENÉ), A., ii, 66; (SCHLOSSER), A., ii, 185; (LOHNSTEIN), A., ii, 580.
 estimation of indican in (OBERMAYER), A., ii, 263, 458; (WANG), A., ii, 458.
 estimation of indoxylsulphuric acid in (OBERMAYER), A., ii, 458.
 estimation of iron in (RÖHMANN and STEINITZ), A., ii, 814.
 estimation of oxalic acid in (SALKOWSKI), A., ii, 705.
 estimation of phenol in (NEUBERG), A., ii, 454.
 estimation of phosphoric acid in (NEUMANN), A., ii, 54.
 estimation of potassium and sodium in (HERRINGHAM), A., ii, 333.
 estimation of sugar in (POLENSKE), A., ii, 186.
 estimation of toxins, leucomaines, alkaloids, diastases, and proteids in (CHIBRET), A., ii, 459.
 estimation of urea in (MOREIGNE), A., ii, 73; (SALASKIN and ZALESKI), A., ii, 825.
 estimation of uric acid in (GIGLI), A., ii, 71; (MALLET), A., ii, 706.
Urobilin, detection of, in urine (SAILLET), A., ii, 459.
Urochloralic acid (NEUBERG), A., i, 933.
Urotropine. See Hexamethylenetetramine.
Utric acid, presence of, in *Cladonia silvatica* and *Placodium saxicolum*; and separation from atranorin (HESSE), A., i, 382.
 from *Platysma cucullatum*, *P. diffusum*, and *Alectoria ochroleuca* (ZOFF), A., i, 716.
Utahite from Chili (ARZRUNI, THAD-DÉE, and DANNENBERG), A., ii, 563.

Uvitic acid, synthesis of (WOLFF and HEIP), A., i, 515, 516.

V.

Valency, nature of (VENABLE), A., ii, 470.

Valeraldehyde, δ -amino-, action of carbon disulphide and of nitrous acid on; also oxidation of the benzoyl derivative (MAASS and WOLFFENSTEIN), A., i, 110.

nitro-, phenylhydrazone (*phenylnitroazopentane*), α - and β -modifications of, and action of soda on the latter (BAMBERGER), A., i, 108.

iso-**Valeraldehyde**, action of ethylenediamine on (KOLDA), A., i, 328.

iso-**Valeramide**, preparation of (ASCHAN), A., i, 14.

α -bromo- (BISCHOFF and TSCHUNKEW), A., i, 277.

iso-**Valeramidoazobenzene**, α -bromo- (BISCHOFF and SOBOLEWSKI), A., i, 232.

Valeranilide, specific rotation of (GUYE and BABEL), A., ii, 719.

Valeric acid, surface tension of aqueous solutions of (FORCH), A., ii, 641.

preparation and bromination of (CROSSLEY and LE SUEUR), T., 166.

Valeric acid, zinc salt, preparation of (VITALI), A., i, 112.

amylic salt, density, specific rotation and molecular volume of (FRANKLAND), T., 358.

ethoxyphenylic salt (MERCK), A., i, 802.

ethylic salt, viscosity of solutions of, in thymol (SCHALL), A., ii, 640.

Valeric acid, α -bromo-, ethylic salt, action of diethylaniline on (CROSSLEY and LE SUEUR), T., 166; P., 1898, 219.

α -chloro-, methylic salt (HENRY), A., i, 567.

$\alpha\delta$ -dicyano-, ethylic salt, and its hydrolysis (CARPENTER and PERKIN), T., 928.

iso-**Valeric acid**, separation of acetic acid from (CHAPMAN), A., ii, 704.

separation of, from other fatty acids (HOLZMANN), A., ii, 68.

iso-**Valeric acid**, α -bromo-, ethylic salt, action of benzylaniline and diphenylamine on (BISCHOFF), A., i, 125.

action of sodium methoxide, ethoxide, and *n*- and *iso*-propoxides on (BISCHOFF), A., i, 669.

iso-**Valeric acid**, α -bromo-, ethylic salt, action of sodium butoxides, *iso*-amyloxide, octyloxide, and *iso*-capryloxide on (BISCHOFF), A., i, 670.

action of quinoline and of diethylaniline on (CROSSLEY and LE SUEUR), T., 164; P., 1898, 219.

β -chloro-, ethylic salt, action of potassium cyanide on, and its condensation with ethylic malonate (MONTEMARTINI), A., i, 420.

Valeric acid (*methylethylacetic acid*), *d*-, ethereal salts, density, specific rotation, and molecular volumes of (FRANKLAND), T., 359.

d-, *l*-, and *i*-, silver salts of, and the synthesis of the first (MARCKWALD), A., i, 477.

Valeric acid (*trimethylacetic acid*, *dimethylpropionic acid*), ethylic salt, velocity of formation, and hydrolysis of (SUBBOROUGH and LLOYD), T., 475; P., 1899, 3.

cyno-, ethylic salt, from action of heat on monethylic cyanodimethylsuccinate, and its reduction (BLAISE), A., i, 480.

iso-**Valerobenzyamide**, α -bromo- (BISCHOFF and TSCHUNKEW), A., i, 277.

iso-**Valerobenzyanilide**, α -bromo- (BISCHOFF), A., i, 126.

iso-**Valerodi- α -naphthylethylenediamine**, α -bromo- (BISCHOFF and PÄPKE), A., i, 279.

iso-**Valerodiphenylamide**, α -bromo- (BISCHOFF), A., i, 126.

iso-**Valerodiphenylhydrazide**, α -bromo- (BISCHOFF), A., i, 278.

iso-**Valeromethylanilide**, α -bromo- (BISCHOFF and HIRSCHFELD), A., i, 278.

iso-**Valero- α - and β -naphthalides**, α -bromo- (BISCHOFF and PÄPKE), A., i, 278.

iso-**Valero-*o*-nitranilide**, α -bromo- (BISCHOFF and PÄPKE), A., i, 278.

iso-**Valero-*m*-nitranilide**, α -bromo- (BISCHOFF and WATSCHJANZ), A., i, 278.

iso-**Valero-*p*-nitranilide**, α -bromo- (BISCHOFF and HIRSCHFELD), A., i, 278.

Valeronitrile, α -chloro-, and its hydrolysis (HENRY), A., i, 567.

iso-**Valeronitrile** (*isopropylacetoneitrile*), α -chloro- (HENRY), A., i, 256.

β -**Valerophenylhydrazide**, from hydrolysis of nitrovaleraldehydephenylhydrazone (BAMBERGER), A., i, 109.

iso-**Valeropiperidine** (AUERBACH and WOLFFENSTEIN), A., i, 936.

α -bromo- (BISCHOFF and HOLM), A., i, 230.

- Valero-** *o*-, *m*-, and *p*-toluidides, specific rotations of (GUYE and BABEL), A., ii, 719.
- iso-Valero-** *o*-, *m*-, and *p*-toluidides, α -bromo- (BISCHOFF and PÄPKE), A., i, 277.
- iso-Valerylcabazole**, α -bromo- (BISCHOFF and KARUKOWSKI), A., i, 231.
- iso-Valeryleyanacetic acid**, methylic and ethylic salts, and their metallic derivatives (KLOBB), A., i, 113.
- iso-Valeryleyanhydrin**. See α -Hydroxy-isohexonitrile.
- iso-Valerylmalic acid**, ethereal salts, specific relations and molecular volumes of (FRANKLAND), T., 348, 352.
- Valleriite** from Sweden (PETREN), A., ii, 759.
- Vanadium** in rocks from the United States (HILLEBRAND), A., ii, 112; (TURNER and others), A., ii, 498.
- in peat (BASKERVILLE), A., ii, 666.
- electro-deposition of (COWPER-COLES), A., ii, 755.
- Vanadium**, trichloride, tribromide and triiodide (PICCINI and BRIZZI), A., i, 297.
- ver*-**Vanadates**, constitution of (MELIKOFF and PISSARJEWSKY), A., ii, 299.
- sulphate, for detection of alkaloids (BARTH), A., ii, 47.
- and ammonium and potassium sulphates (PICCINI), A., ii, 297.
- double thiocyanates of, with potassium, sodium, and ammonium (CIOCI), A., i, 321.
- Vanadium**, estimation of small quantities of, in rocks (HILLEBRAND), A., ii, 112.
- Vanadium-mica** from California (HILLEBRAND, TURNER, and CLARKE), A., ii, 496.
- Vanadium mineral** (*carnotite*) from Colorado (FRIEDEL and CUMENGE), A., ii, 434.
- Vanillic acid**, β -nitro-, and β -amino-, and its platinochloride and acetyl derivative (VOGL), A., i, 698.
- Vanillosazone** (BILTZ and WIENANDS), A., i, 911.
- Vanillin**, presence of, in cork (THOMS), A., ii, 324.
- presence of, in opoponax and Peru balsam (TSCHIRCH and KNITL), A., i, 714; (THOMS), A., i, 715.
- synthesis of (BOUVEAULT), A., i, 437.
- mono- and tri-acetates (FREYSS), A., i, 875.
- separation of coumarin from, in flavouring extracts (HESS and PRESCOTT), A., ii, 531.
- Vanillin**, β -nitro-, and its acetate and oxime (VOGL), A., i, 697.
- Vanilloylcarboxylic acid** (BOUVEAULT), A., i, 437.
- Vapour density**, determination of, under arbitrary pressure (BLEIER and KOHN), A., ii, 643.
- method for determining (WINKLER), A., ii, 728.
- of hexamethylene (YOUNG and FORTEY), T., 880; P., 1899, 182.
- Vapour pressure** of solutions, method of determining (WADE), A., ii, 8.
- measurements (DÜHRING), A., ii, 726.
- and osmotic pressure, relation between (NOYES), A., ii, 357.
- surface for aqueous solutions of two salts which form a double salt (DONNAN), A., ii, 402.
- of mixed liquids (LEHFELDT), A., ii, 11.
- of air at temperature of boiling hydrogen (DEWAR), A., ii, 741.
- of amalgams (OGG), A., ii, 14.
- of solutions (SCHILLER), A., ii, 357.
- of solutions of volatile substances (LEHFELDT), A., ii, 633.
- of aqueous solutions of hydrochloric acid (ALLAN), A., ii, 82.
- of aqueous solutions of sulphuric acid, sodium chloride, cane sugar, dextrose, glycerol, or carbamide, molecular depression of (DIETERICI), A., ii, 403.
- of hydrated crystals (TAMMANN), A., ii, 8.
- of hexamethylene (YOUNG and FORTEY), T., 876; P., 1899, 182.
- of iodine (DEWAR), P., 1898, 242.
- of mercurial solutions (CADY), A., ii, 395.
- of naphthalene, and of camphor (ALLEN), P., 1899, 122, 135.
- of isopentane, and of mercury (YOUNG), A., ii, 633.
- Vapours**, mixed, composition of (CARVETH), A., ii, 467.
- Vegetables**, estimation of copper in (LEHMANN; VEDRÖDI), A., ii, 59.
- "**Vegetale**," note on (WIRTHLE), A., ii, 824.
- Velocity of chemical change**. See Affinity, chemical.
- Velocity of crystallisation** (KÜSTER), A., ii, 15.
- Velocity constants** in conversion of ammonium thiocyanate into thiocarbamide and *vice versa* (WADDELL), A., ii, 411.
- Veratraldehyde**, and its hydrazone (BOUVEAULT), A., i, 228, 437.

- Veratric acid**, formation of (BOUVEAULT), A., i, 288.
- Veratrine** (*cevadine*), m. p., and its hydrolytic products, and physiological action (FREUND and SCHWARZ), A., i, 464.
- detection of (MEIZER), A., ii, 193 ; (KONDAKOFF), A., ii, 827.
- Veratrole**, depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
- trichloro-*, and *tribromo-* (COUSIN), A., i, 200.
- Vesiculase**, a coagulating ferment of the prostatic secretion (CAMUS and GLEY), A., ii, 779.
- Vermiculite** from New Jersey (CLARKE and DARTON), A., ii, 496.
- Vetch**. See Agricultural chemistry.
- Vibrio septicæmiæ*, action of, on biliverdin, bilirubin, and hæmoglobin (HUGOUNEQ and DOYON), A., ii, 377.
- Vicia fabia*. See Agricultural chemistry.
- Vicin**, constitution of (RITTHAUSEN), A., i, 715.
- Victorium** and its oxide, and atomic weight ; phosphorescent spectrum of ; separation of, from earths of cerium group (CROOKES), A., ii, 751.
- Viellaurite** from the Hautes Pyrénées (LIENAU), A., ii, 761.
- Vine**. See Agricultural chemistry.
- Vinegar**, detection of caramel in (CRAMP-
TON and SIMONS), A., ii, 530.
- estimation of acidity and ash in (ERCKMANN), A., ii, 339.
- Vinylacetic acid** and calcium salt (WISLICENUS), A., i, 736.
- Vinylacetonitrile**. See Butenoic acid, nitrile of.
- identity of, with ethyleneacetonitrile (HENRY), A., i, 676.
- Vinylamine**. See Dimethyleneimine.
- Vinyldiacetonamine**, condensation of, with ethylic mercaptan (PAULY), A., i, 228.
- Vinylglycollic acid** (*α -hydroxybutenoic acid*), and action of soda on (SLEEN), A., i, 864.
- Vinyllic alcohol**, a colour reaction of (RIMINI), A., i, 787.
- o*-**Vinylphenol** (KUNZ-KRAUSE), A., i, 201.
- Violaquercitrin**, potassium derivative of (PERKIN), T., 440 ; P., 1899, 65.
- Violets**, artificial oil of, composition of (STIEHL), A., i, 67.
- Violuric acid**. See Barbituric acid, nitroso-.
- ψ -**Violuric acid**, methylic salt of (GUINCHARD), A., i, 781.
- Viscosity**, effect of pressure on (BOGOW-JAWLENSKY and TAMMANN), A., ii, 137.
- of gases and of gaseous mixtures, and its alteration with temperature (BREITENBACH), A., ii, 403.
- of solutions of ethereal salts in super-cooled thymol (SCHALL), A., ii, 640.
- of undercooled liquids (TAMMANN), A., ii, 272.
- Viscosity coefficients**, measurement of (GUYE and FRIDERICH), A., ii, 358.
- Vitexin**, relation of, to scoparin (PERKIN), P., 1899, 123.
- action of potassium acetate on (PERKIN), T., 443.
- Vivianite** in Dutch peat (BEMMELEN), A., ii, 371.
- in Mecklenburg peat (GAERTNER), A., ii, 302.
- Volume, molecular**, of benzoyltetrahydroquinaldine, *d-*, *l-*, and *r-* (POPE and PEACHEY), T., 1073, 1082, 1092.
- of butyric, caproic, caprylic, capric, lauric, myristic, palmitic and stearic acids and their glycerylic salts (SCHEIJ), A., i, 668.
- of hexamethylene (YOUNG and FORTEY), T., 878, P., 1899, 182.
- of organic salts of menthol (TSCHUGÆFF), A., ii, 3.
- Volumes, specific**, direct, and from critical constants, differences between (LEDUC), A., ii, 729.
- of compounds of mercury with lithium, sodium or potassium (MAEY), A., ii, 547.
- of steam (STARKWEATHER), A., ii, 270.
- Volumes of liquids**, measurement of (WAGNER), A., ii, 379.
- Volumeometer**, improved form of (McKENNA), A., ii, 467.
- Volumetric apparatus**, methods used in graduating (FISCHER), A., ii, 592.
- Vulpic acid**, presence of, in *Calycium chrysocephalum* (HESSE), A., i, 385.

W.

Wad, cobaltiferous, from New South Wales (JAQUET), A., ii, 162.

Walnut-cake. See Agricultural chemistry.

WATER:—

synthesis and volumetric composition of (LEDUC), A., ii, 475.

gravimetric synthesis of (KEISER), A., ii, 87.

molecular association of (VAUBEL), A., ii, 727.

WATER :—

- blue colour of (SPRING), A., ii, 475.
- optical transparency of (SPRING), A., ii, 537.
- refractive index of (BENDER), A., ii, 621; (CONROY), A., ii, 717.
- copper | zinc cell with hydrochloric or trichloroacetic acid in, E.M.F. of (SALVADORI), A., ii, 721.
- heat conductivity of (AUBEL), A., ii, 354.
- latent and total heat, and entropy of (STARKWEATHER), A., ii, 270.
- effect of pressure on melting point and latent heat of fusion of, at low temperatures (TAMMANN), A., ii, 635.
- freezing point of mixtures of acetic acid and (DE COPPER), A., ii, 546.
- critical points of mixtures of, with ethane or carbon dioxide (KUENEN and ROBSON), A., ii, 356.
- specific volume of (LEBUC), A., ii, 729.
- composition of mixed vapours of acetone and (CARVETH), A., ii, 467.
- solubility, mutual, of organic liquids and (HERZ), A., ii, 83.
- equilibrium between alcohol, potassium nitrate and; temperatures at which two liquid phases appear in (DODGE and GRATTON), A., ii, 408.
- solutions of chlorine in, equilibrium in, partition of chlorine between carbon tetrachloride and (JAKOWKIN), A., ii, 736.
- equilibrium between ethylic or methylic alcohols, ammonium or sodium sulphates or potassium carbonate and (DE BRUYN), A., ii, 591.
- equilibrium between phenol, aniline and (SCHREINEMAKERS), A., ii, 739.
- equilibrium between potassium chloride, acetone and; between sodium chloride, succinonitrile and; between potassium carbonate, alcohol and, and between naphthalene, acetone and (SNELL), A., ii, 407, 408.
- partition of, between sulphuric acid and some salts (BUSNIKOFF), A., ii, 361.
- of hydration in salts (WALD), A., ii, 276.
- action of sodium on, heat developed in (DE FORCRAND), A., ii, 589.

NATURAL WATER :—

- colour of (SPRING), A., ii, 228.
- agents for removing lime and magnesia from (GRIFFIN), A., ii, 655.
- River water**, composition of Danish (WESTERMANN), A., ii, 514.
- from West Riding of Yorkshire (HALLIWELL), A., ii, 772.

NATURAL WATER :—

- River water** or lake water, decolorising of, by sunlight (SPRING), A., ii, 570.
- Lake water**, from Lake Ruzsanda, Hungary (KALECSINSZKY), A., ii, 161.
- Spring and mineral water**, from Arva-Polhora, Hungary (KALMANN and GLÄSER), A., ii, 771.
- from Austria (JOHN and EICHLERTER), A., ii, 493.
- from Bagnoli, Tuscany (NASINI and SALVADORI), A., ii, 771.
- from E. Bohemia (JOHN), A., ii, 501.
- from Canada (HOFFMANN), A., ii, 110.
- from Carlsbad, deposition of sulphur and pyrites by (KNETT), A., ii, 772.
- from Castrocara, Italy (SESTINI and CAMPANI), A., ii, 38.
- from Harzburg (ORTO and TROEGER), A., ii, 437.
- from an Artesian well at Ilkeston, barium salts in (WHITE), A., ii, 420.
- from Illyés Lake, Hungary (LENGYEL), A., ii, 163.
- from Karlsdorf, Galicia (DUNIN-WASOWICZ and HOROWITZ), A., ii, 772.
- from Mont-Dore (PARMENTIER), A., ii, 675.
- from Nérès-les-Bains, fluorine in (CARLES), A., ii, 308.
- from Radein, Styria (REIBENSCHUH), A., ii, 308.
- from Royat, iodine in (DUBOIN), A., ii, 602.
- from Sahara desert (LAHACHE), A., ii, 675.
- sulphur water of Sandefjord, Norway (BÖDTKER), A., ii, 39.
- from Selters, Nassau (FRESENIUS), A., ii, 114.
- from wells on the sea coast at the estuary of the Somme (GUICHARD), A., ii, 566.
- fluorine in (PARMENTIER), A., ii, 501, 675; (LEPIERRE), A., ii, 602.
- detection of rare metals in (GARRIGOU), A., ii, 616.
- Sea water**, from the Caspian (KUSNETZOFF), A., ii, 303.
- from the Mediterranean (GAUTIER), A., ii, 649.
- from the Red Sea (NATTERER), A., ii, 501.
- estimation of iodine in (GAUTIER), A., ii, 477.

- Water**, potable, moorland, acidity and plumbo-solvent action of (ACKROYD), T., 196; P., 1899, 1.
 containing free carbon dioxide, action of, on iron (KRÖHNKE), A., ii, 752.
 action of, on lead pipes (ANTONY), A., ii, 290.
 hard, action of, on metals (HOWE and MORRISON), A., ii, 475.
 action of, on zinc and galvanised iron (DAVIES), A., ii, 555.
 sterilisation of, by ozone (MARMIER and ABRAHAM), A., ii, 506.
- Water**, sterilised, new form of still for preparing (GAWALOWSKI), A., ii, 515.
- Water analysis**:—
 analysis of (BAILEY and JOHNSTON), A., ii, 697.
 technical analysis of (GIORGIS and FELICIANI), A., ii, 453.
 detection of nitrates in (CIMMINO), A., ii, 805.
 estimation of alkalis in (BOHLIG), A., ii, 810.
 determination of alkalinity of, indicators for (ELLMs), A., ii, 525.
 estimation of ammonia, nitrates and nitrites in (WINKLER), A., ii, 805.
 estimation of iron in (SEYDA), A., ii, 341.
 estimation of traces of lead in (LIEBRICH), A., ii, 58.
 estimation of organic matter in (MARBOUTIN and FRANCK), A., ii, 184.
 estimation of dissolved oxygen in (FLORENCE), A., ii, 179; (MACKEY and MIDDLETON), A., ii, 244; (LEVY and MARBOUTIN), A., ii, 381; (GERLAND), A., ii, 697.
 estimation of, in phenols (SCHRYVER), A., ii, 701.
 estimation of phosphoric acid in, colorimetrically (JOLLES), A., ii, 579.
 estimation of, in invert sugar (THORNE and JEFFERS), A., ii, 51.
 estimation of amount of softening agent required by a hard (VIGNON and MEUNIER), A., ii, 452.
 measurement of the turbidity of (MASON), A., ii, 615.
- Water**. See also Agricultural chemistry.
- Water-chestnut**, composition of (NEUMANN), A., ii, 794.
- Water-pump**, apparatus for preventing backward flow of water from (CHATA-NAY), A., ii, 646.
- Wax**:—
 beeswax, examination of (DIETERICH), A., ii, 133.
 of the humble bee, composition of (SUNDEVIK), A., i, 112.
- Wax** from cork, and its decomposition (THORNS), A., ii, 324.
 from opoponax (TSCHIRCH and KNITL), A., i, 714.
- Waxes**, determination of melting points of (DOWZARD), A., ii, 725.
- Weights**, equivalent, and contraction of aqueous solutions on diluting (WADE), T., 271; P., 1899, 8.
- Weights**, molecular, deduced from dissociation pressures of gaseous hydrates (ROSSET), A., ii, 548.
 determination of, by a vapour density method (BLEIER and KOHN), A., ii, 643.
 of liquids (SPEYERS), A., ii, 145.
 of liquids, and critical constants, relation between (BERTHELOT), A., ii, 404.
 of some salts in nitrobenzene (KAHLENBERG and LINCOLN), A., ii, 397.
 of some salts dissolved in urethane (CASTORO), A., ii, 360.
 of ammonium azoimide (CURTIUS and RISSOM), A., ii, 91.
 of argon (BERTHELOT), A., ii, 207.
 of ozone (LADENBURG), A., ii, 89, 281; (STAEDEL; GRÖGER), A., ii, 150.
 of sodium hyponitrite (DIVERS), T., 122.
 and melting points of the acids of the oxalic series, relations between (MASSOL), A., i, 733.
 of alcohols, in benzene and naphthalene solutions (BILTZ), A., ii, 634.
 of benzene, toluene, and alcohol in the liquid state (SPEYERS), A., ii, 468.
 of benzopurpurin and "diamine-pure-blue" in solution (KRAFFT), A., ii, 473.
 of ethylenic chlorobromide or cyanide in ethylenic bromide; of dimethylic fumarate in dimethylic succinate; of elaidic in stearic, and stearic in elaidic acid (BRUNI and GORNI), A., ii, 731.
 of ethylic sodiomalonate and sodio-acetoacetate (VORLÄNDER and SCHILLING), A., i, 672.
 of rosaniline hydrochloride, methyl-violet and methylene-blue, in water or alcohol (KRAFFT), A., ii, 473.
 of sodium oleate (KAHLENBERG and SCHREINER), A., ii, 203.
- Wheat**. See Agricultural chemistry.
- Wheat bran** or **grain**, estimation of cellulose in (LEBBIN), A., ii, 67.
- Wheat flour**, detection of maize starch in (BAUMANN), A., ii, 703.

(*o*-Xylene, *Me*:*Me*=1:2; *m*-xylene, *Me*:*Me*=1:3; *p*-xylene, *Me*:*Me*=1:4).

Wine bouquet, improvement of, addition of vine-leaf extract to must; and effect on yeasts (JACQUEMIN), A., ii, 377.

mercury in (VIGNON and PERRAUD), A., ii, 446.

making, effect of sterilising must in (ROSENSTIEHL), A., ii, 508.

Wine analysis:-

analysis of (RIPPER; BARTH), A., ii, 699.

detection of fluorine in (PARIS), A., ii, 804.

detection of salicylic acid in (ABRAHAM), A., ii, 341.

estimation of alcohol and acidity in (ERCKMANN), A., ii, 339.

estimation of extractive matter in (FRESENIUS), A., ii, 253.

estimation of glycerol in (FABRIS), A., ii, 131.

estimation of mercuric chloride in (GAYON and LABORDE), A., ii, 385.

estimation of mercury and copper in (VIGNON and BARRILLOR), A., ii, 452.

estimation of potassium hydrogen tartrate in (MAGNIER DE LA SOURCE), A., ii, 70; (JAY), A., ii, 133.

estimation of tartaric acid in (KULISCH, KOHLMANN, and HÖPPNER), A., ii, 340.

examination of "sugared" wines (MÖSLINGER), A., ii, 700.

Wine-vinegar (FARNSTEINER), A., ii, 705.

Wolframite from Caucasus (TSCHERNIK), A., ii, 669.

from Zinnwald, indium in (ATKINSON), A., ii, 600.

Wolfsbergite, artificial (SOMMERLAD), A., ii, 216.

Wollastonite from Austria (JOHN and EICHLEITER), A., ii, 493.

artificial (MOROZEWICZ), A., ii, 764.

Wood, the so-called lignia reaction of (CZAPEK), A., i, 560.

detection of (PIUTTI), A., ii, 340.

Wood charcoal, action of sulphuric acid on (BERTHELOT), A., ii, 286.

Wood oil, Japanese (KITR), A., i, 864.

Wood tar, distillation of (BÉHAL), A., i, 121.

Wormwood, a new constituent of (ADRIAN and TRILLAT), A., i, 301.

Wort, influence of the mineral constituents of water on composition of (LOTT), A., ii, 683.

Wort, percentages of calcium and magnesium in, and determination of acidity of (MATTHEWS and WOOLCOTT), A., ii, 174.

See also Beer.

X.

Xanthine from uric acid (SUNDEVIK), A., i, 174.

heats of combustion and formation of (BERTHELOT and ANDRÉ), A., ii, 400.

identification of (FISCHER), A., i, 176.

theobromine and caffeine, relative stability of, towards alkalis (FISCHER), A., i, 262.

Paraxanthine, new synthesis of (FISCHER and CLEMM), A., i, 173.

chloro- (FISCHER and CLEMM), A., i, 173.

Xanthine bases, amount of, in beer (LASZCZYNSKI), A., ii, 793.

Xanthione (GRAEBE and RÖDER), A., i, 706.

Xanthitane (?) from Dublin (O'REILLY), A., ii, 498.

Xanthone group of colouring matters, salt-formation by (PERKIN), T., 442; P., 1899, 66.

Xanthone-oxime, -phenylhydrazone and -phenylimine (GRAEBE and RÖDER), A., i, 705, 706.

Xanthorhamnin, formula, and potassium derivative (PERKIN), T., 440; P., 1899, 65.

Xanthorrhæa resin oil, constituents of (SCHIMMEL and Co.), A., i, 63.

Xanthoria parietina, constituents of (HESSE), A., i, 386.

Xenon, discovery of (RAMSAY), A., ii, 212.

position of, in periodic system (HOWE), A., ii, 740.

Xenotime from Ontario (HOFFMANN), A., ii, 110.

o-Xylene hexachloride (RADZIEWANOWSKI and SCHRAMM), A., i, 197.

p-nitro-, electrolytic reduction of (ELBS and KOPF), A., i, 270.

m-Xylene in lignite tar (OEHLER), A., i, 816.

diffusion coefficient of, across vulcanised caoutchouc (FLUSIN), A., ii, 205.

action of sulphur chloride on, with aluminium-mercury couple (COHEN and SKIRROW), T., 890; P., 1899, 183.

- (*o*-Xylene, *Me:Me*=1:2; *m*-xylene, *Me:Me*=1:3; *p*-xylene, *Me:Me*=1:4).
- m*-Xylene, 2-bromo, 4-chloro-2-bromo-, 2-cyano- and 5-iodo- (NOYES), A., i, 284, 285.
- p*-bromo-, preparation of (COHEN and DAKIN), T., 894; P., 1899, 183.
- v*-Xylene, effect of pressure on melting point curves of (TAMMANN), A., ii, 636.
- depression of freezing point of *o*-nitrophenol by (AMPOLA and RIMATORI), A., ii, 353.
- tetrabromo- (ZELINSKY and NAUMOW), A., i, 197.
- Xylenes, *m*- and *p*-, ω -nitro-, and metallic derivatives (KONOWALOFF), A., i, 873.
- 3'-*m*-Xylene-*p*-azo-3-methylindazole (BAMBERGER and VON GOLDBERGER), A., i, 546.
- m*-Xylenedioxime (ZINCKE and SCHWARZ), A., i, 751.
- m*-Xylenephthalamide (CONRAD and HOCK), A., i, 642.
- m*-Xylenesulphinic acid (GATTERMANN), A., i, 517.
- 1:2:6-Xylenol, from *m*-hydroxy-*p*-xylic acid (PERKIN), T., 192.
- m*-Xylenol, thio- (COHEN and SKIRROW), T., 891; P., 1899, 183.
- 1:4:6-Xylenol, 2:5-dibromo- and 2:3:5-tribromo-, and its benzoate (AUWERS and ERCKLENTZ), A., i, 35.
- 2:3:5-tribromo-, and benzoate (AUWERS), A., i, 343.
- compound formed by action of fuming nitric acid on (AUWERS and RAPP), A., i, 30.
- Xylenolcarbinol, dibromo-, and acetate (AUWERS), A., i, 343.
- Xylic acids (*xylylic acids*). See Dimethylbenzoic acids.
- 2-*m*-Xylidine, from commercial xylidine (NOYES), A., i, 284.
- velocity of diazotisation of (HANTZSCH and SCHÜMANN), A., ii, 550.
- colouring matter obtained from, by action of *p*-nitrodiazobenzene (FRIEDLÄNDER and BRAND), A., i, 351.
- 4-*o*-Xylidine-(?6)-sulphonic acid (CAZENEUVE and MOREAU), A., i, 431.
- 4-*m*-Xylidine-6-sulphonic acid (CAZENEUVE and MOREAU), A., i, 431.
- Xylitol, condensation of benzaldehyde with (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 662.
- Xylonic acid, conversion of xylose into, by sorbose bacterium. (BERTRAND), A., ii, 44.
- Xylonitrile. See 2:4-Dimethylbenzonitrile.
- p*-Xyloquinone, dibromo-, formation of (AUWERS and RAPP), A., i, 30.
- Xylose, phenylosazone of (ZANOTTI), A., i, 851.
- action of sorbose bacterium on, in yeast extract (BERTRAND), A., ii, 44.
- m*- and *p*-Xylylamines and salts (KONOWALOFF), A., i, 873.
- m*-Xylyl- ψ -azimino-nitro- and -*d*-nitrobenzene (WILLGERODT and KLEIN), A., i, 883.
- m*-Xylylaznitroso-nitro- and -*d*-nitrobenzene (WILLGERODT and KLEIN), A., i, 883.
- m*-Xylylcarbamide (WALTHER and WLODKOWSKI), A., i, 590.
- p*-Xylylcarboxylic acid (BOUVEAULT), A., i, 287.
- p*-Xylylchloromethylketone (COLLET), A., i, 56.
- m*-Xylylchlorophosphine (CONEN), A., i, 203.
- 4-*m*-Xylyldihydroquinazoline, 2-bromo- (DRAWERT), A., i, 643.
- m*-Xylyldimethylphosphine, and its oxide (CONEN), A., i, 203.
- m*-Xylylenefurazan (ZINCKE and SCHWARZ), A., i, 751.
- o*-Xylylenic bromide, action of, on alkaloids (SCHOLTZ), A., i, 648.
- action of, on bebeerine (SCHOLTZ), A., i, 92.
- o*-, *m*-, and *p*-Xylylenic chlorides (RADZIEWANOWSKI and SCHRAMM), A., i, 197.
- m*-Xylyl-4-glyoxylic acid, 5-bromo-, 5-iodo- (NOYES), A., i, 285.
- p*-Xylylglyoxylic acid, and ethylic salt (BOUVEAULT), A., i, 286.
- 1:3:2-Xylylhydrazine (BUSCH), A., i, 496.
- Xylylic acids (*xylylic acids*). See Dimethylbenzoic acids.
- p*-Xylylic phenylcarbamate (AUWERS), A., i, 343.
- m*- and *p*-Xylylic mercaptans (GATTERMANN), A., i, 518.
- o*-, *m*-, and *p*-Xylylic chlorides (RADZIEWANOWSKI and SCHRAMM), A., i, 197.
- 2-Xylylidene-phthalide and -phthalimide (BETHMANN), A., i, 520.
- m*-Xylyl methyl ketone, preparation of (VERLEY), A., i, 207.
- m*-Xylylmethylnitrosamine, nitro-[$\text{Me}_2 : \text{N} : \text{NO}_2 = 1:3:4:5$], and amino-, and its picrate (PINNOW and OESTERREICH), A., i, 203.

(*o*-Xylene, *Me:Me*=1:2; *m*-xylene, *Me:Me*=1:3; *p*-xylene, *Me:Me*=1:4).

- 2:4-Xylylmethylthiosemicarbazide** (MARCKWALD), A., i, 505.
2:4-Xylylphenylthiosemicarbazide, and the thiodiazolone (MARCKWALD), A., i, 505.
1:3-Xylyl-5-phosphonium iodide (CONEN), A., i, 209.
1:3-Xylyl-4-phosphonium iodide, hydr-oxide and chloride (CONEN), A., i, 208.
2-Xylylphthalide (BETHMANN), A., i, 520.
4-Xylylquinazolone and salts, and 2-chloro-derivative (DRAWERT), A., i, 642.
4-Xylyltetrahydro-2-ketoquinazoline, and its salts (DRAWERT), A., i, 643.
Xylylthiocarbimide (BUSCH), A., i, 496.

Y.

- Yeast**, nutrition of, and influence of sulphur compounds on (STERN), T., 201; P., 1898, 182.
 acclimatisation of, and influence of various sugars on their fermentative power (DIENERT), A., ii, 442.
 influence of mineral constituents of brewing waters on, and composition of ash (LOTT), A., ii, 683.
 action of various poisons on (WEHMER), A., ii, 785.
 absence of chitin from (TANRET), A., ii, 171.
 action of the liquid pressed out from, on dextrin (PETIT), A., i, 559.
 action of, on pure glyceraldehyde and dihydroxyacetone (EMMERLING), A., ii, 318.
 secretion of lactase and melibiase by (DIENERT), A., ii, 683.
 fermentation of sugars by, and influence of nitrogenous matter thereon (DUBOURG), A., i, 376.
 in wine making, action of vine-leaf extract on (JACQUEMIN), A., ii, 377.
 beer, absorption of oxygen by, and presence of an enzyme in (EFFRONT), A., ii, 118.
 bottom, Munich, action of, on dextrose and levulose (BUCHNER and RAPP), A., ii, 606.
 brewer's, action of, on malic acid due to bacteria (EMMERLING), A., ii, 570.
 compressed, amount of pentosans in (MENOZZI), A., ii, 683.
 wine, formation of glycogen in (KAYSER and BOULLANGER), A., ii, 236.

- Yeast-cells**, influence of oxygen and mechanical shaking on (BUCHNER and RAPP), A., ii, 169.
Yeast enzymes, hydrolysis of polysaccharides by (KALANTHAR), A., i, 102.
Yeast extract (Buchner's), composition of (WRÓBLEWSKI), A., ii, 170.
 preparation; action on starch and sugars, and influence of potassium arsenite on (BUCHNER and RAPP), A., ii, 606.
 formation of glycogen in (CREMER), A., ii, 606.
 experiments with (BUCHNER and RAPP), A., ii, 236.
 influence of a nutrient media on amount of zymase in (ALBERT), A., ii, 783.
 and xylose, action of sorbose bacterium on (BERTRAND), A., ii, 44.
 proteolytic action of, and action of various reagents (GEREB and HAHN), A., i, 94.
Yetiver oil (SCHIMMEL and Co.), A., i, 924.
Yohimbehe bark, alkaloids of (SPIEGEL), A., i, 966.
Yohimbic acid (SPIEGEL), A., i, 966.
Yohimbine, and methiodide, acetyl, and oxidation derivatives (SPIEGEL), A., i, 966.
Yohimbine (SPIEGEL), A., i, 967.
Yolk of egg, detection of (DIETERICH), A., ii, 392.
Ytterbium in monazite sand (SCHÜTZENBERGER and BOUDOUARD), A., ii, 367.
Yttria earths, fractionation of (SCHÜTZENBERGER and BOUDOUARD), A., ii, 367.
Yttrium in monazite sands (URBAIN), A., ii, 28; (SCHÜTZENBERGER and BOUDOUARD), A., ii, 367.
 nitrates (WYROUBOFF and VERNEUIL), A., ii, 225.
 oxide, constitution of (WYROUBOFF and VERNEUIL), A., ii, 598.
 oxides, complex oxides and nitrates from (WYROUBOFF and VERNEUIL), A., ii, 424.
 silicate. See Thalénite.
Yttrium minerals in ore deposits (SJÖGREN), A., ii, 37.

Z.

- Zeolites**, action of water on (CLARKE), A., ii, 109.
Zeoric acid, probably an impure form of parrellic acid (HESSE), A., i, 383.

- Zeorin**, presence of, in *Placodium saxicolum*, and decomposition products, and isomeride (HESSE), A., i, 382.
- iso-Zeorin*, and **Zeorinin** (HESSE), A., i, 382.
- Zinc**, and zinc sponge, electrolytic formation of (FOERSTER and GÜNTHER), A., ii, 220.
- presence of, in copper precipitated by its use (SHENGLE and SMITH), A., ii, 749.
- potential difference between, and solutions of its salts in organic solvents (KAHLENBERG), A., ii, 624.
- heat of vaporisation of (SUTHERLAND), A., ii, 7.
- heat of amalgamation of (RICHARDS and LEWIS), A., ii, 267.
- mixtures of, with lead, partition of tin or silver in (BANCROFT), A., ii, 470.
- dust, action of, on dibromo-derivatives of paraffin hydrocarbons (IPATIEFF), A., i, 469.
- action of, on sulphuric acid (ADIE), P., 1899, 133; (BERTHELOT), A., ii, 283.
- action of water on (DAVIES), A., ii, 555.
- action of a hard water on (HOWE and MORRISON), A., ii, 476.
- Zinc alloy** with calcium (MOISSAN), A., ii, 154.
- Zinc amalgams** of different concentrations, electromotive force between (CADY), A., ii, 394.
- Zinc salts**, absorption of Röntgen rays by (HÉBERT and REYNAUD), A., ii, 586.
- diffusion of light by solutions of (SPRING), A., ii, 585.
- reduction of, by calcium carbide; alloys with calcium (TARUGI), A., ii, 749.
- influence of, on hæmoglobin formation (WOLF), A., ii, 231.
- Zinc antimonate** (SENDERENS), A., ii, 557.
- and zinc potassium thioantimonites (POUGET), A., ii, 663.
- ortharsenite, formation of (REICHARD), A., ii, 23.
- azoisimide, basic (CURTIUS and RISSOM), A., ii, 92.
- bromide, spark spectrum of (DE GRAMONT), A., ii, 137.
- electrolysis and heat of formation of (CZEPINSKI), A., ii, 268.
- solubility of hydrates of (DIETZ), A., ii, 221.
- chloride, molecular weight of, in urethane (CASTORO), A., ii, 360.
- spark-spectra of (DE GRAMONT), A., ii, 137.
- Zinc chloride**, fused, specific conductivity of (SCHULTZE), A., ii, 623.
- fused, electrolysis of (SCHULTZE), A., ii, 657.
- electrolysis and heat of formation of (CZEPINSKI), A., ii, 268.
- fused, dissociation coefficient of (LORENZ), A., ii, 269.
- coagulation of colloidal solutions of gold, silver, or arsenious sulphide by (STARK), A., ii, 644.
- hydrates of, solubility of (DIETZ), A., ii, 221.
- ammonium chloride, dissociation of, change of entropy in (MATIGNON), A., ii, 273.
- chlorides (BASE), A., i, 41.
- potassium chloride, conductivity of aqueous solutions of (JONES and OTA), A., ii, 587.
- sodium chloride, and ammonium bromides, conductivities of solutions of (JONES and KNIGHT), A., ii, 628.
- iodide, solubility of hydrates of (DIETZ), A., ii, 221.
- lead iodide (MOSNIER), A., ii, 222.
- molybdiolate (CHRÉTIEN), A., ii, 363.
- nitrate, electrolysis of, with copper ferrocyanide membrane (SCHREBER), A., ii, 273.
- densities of solutions of (BARNES and SCOTT), A., ii, 406.
- hydrates of (FUNK), A., ii, 210.
- oxide prepared from nitrate, occluded gas in (RICHARDS), A., ii, 101.
- calcium silicate from New Jersey (WOLFF), A., ii, 435.
- sulphide actinometer (HENRY), A., ii, 394.
- phosphorescence of (MOURELO), A., ii, 420.
- solubility of, in dilute hydrochloric acid, theory of (MORGAN and GOTTHELF), A., ii, 627.
- action of sulphuric acid on (BERTHELOT), A., ii, 283.
- sulphate, thermal change on diluting a saturated solution of (POLLOK), P., 1899, 8.
- densities of solutions of (BARNES and SCOTT), A., ii, 406.
- solution, action of magnesium on (BRYANT), A., ii, 289.
- potassium paratungstate (HALLOPEAU), A., ii, 160.
- Zinc organic compounds** :—
- Triethylenediaminezinc salts (WERNER, MEGERLE, PASTOR, and SPRUCK), A., i, 856.
- Zinc, antipyrine salicylate (SCHUYTEN), A., i, 306.

Zinc organic compounds :—

Zinc bromide and chloride, double ammonio-compound of, with mercuric cyanide (VARET), A., i, 99.

cyanide, electrolysis of (BAKER), A., ii, 749.

or sulphide, heat developed by the action of potassium cyanide on (BERTHELOT), A., ii, 422.

action of ammonia on (VARET), A., i, 98.

potassium cyanide and its decomposition (BERTHELOT), A., i, 847.

action of hydrogen sulphide or sodium sulphide on (BERTHELOT), A., ii, 422.

dithionate phenylhydrazine (MOITESSIER), A., i, 688.

ethyl, preparation of (SIMONOWITSCH), A., i, 871.

iodide, action of isobutylic iodide on (SIMONOWITSCH), A., i, 471.

hypophosphite phenylhydrazine (MOITESSIER), A., i, 688.

methyl, preparation of (SIMONOWITSCH), A., i, 471; (WORO-BÉEFF), A., i, 871.

isopropyl, preparation of (BOHM), A., i, 872.

thiosulphate phenylhydrazine (MOITESSIER), A., i, 688.

Zinc, estimation and separation of:—

estimation of (MURMANN), A., ii, 126; (LANGMUIR), A., ii, 522.

estimation of, electrolytically (PAWECK), A., ii, 250.

Zinc, estimation and separation of:—

estimation of, volumetrically (POUGET), A., ii, 695.

estimation of, in ores containing aluminium (JENSCH), A., ii, 522.

estimation of silver, gold, and mercury in presence of (KOLLOCK), A., ii, 811.

separation of copper from (DEDERICHS), A., ii, 813.

separation of copper, iron, lead, and tin from (LANGMUIR), A., ii, 522.

separation of iron from (BREARLEY), A., ii, 815.

separation of nickel from (DÖHLER), A., ii, 811.

Zinc-boracite containing iodide (ALLAIRE), A., ii, 156.

Zinckenite from the Harz (GUILLERMAIN), A., ii, 757.

artificial (SOMMERLAD), A., ii, 217.

Zircon from Russia (JEREMÉEFF), A., ii, 673.

Zirconium tetrachloride and tetrabromide, compounds of, with amines (MATTHEWS), A., ii, 295, 296.

nitrides (MATTHEWS), A., ii, 296.

oxide "favas" from Brazil (HUSSAK), A., ii, 432.

separation of iron from (MATTHEWS), A., ii, 335.

Zoisite from the Alps (TERMIER), A., ii, 303.

from Scotland (HEDDLE), A., ii, 497.

Zymase in yeast extract, artificial in crease of (ALBERT), A., ii, 783.